The Croonian Lectures

ON

THE DEGENERATION OF THE NEURONE.

Delivered before the Royal College of Physicians of London on June 19th, 21st, 26th, and 28th, 1900.

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LECTURE II.[1]

Delivered on June 21st, 1900.

MR. PRESIDENT AND GENTLEMEN,—In my last lecture I briefly referred to the present position of the neurone theory. I gave some examples of its practical application and I dwelt at some length upon a method which has been used for studying the bio-chemical changes which occur in the protoplasm of the nerve-cell. Moreover, I pointed out the important evidence afforded by the development of the myelin sheath in proving correlation of structure and function, and that the formation of myelin depends upon three fundamental biological principles: 1. An acquired inherent tendency the result of evolutional differentiation of structure and function, for certain systems, groups, and communities of neurones at successive periods of time to ensheathe their axis-cylinders with an insulating and protecting structure—the myelin sheath which in the case of the peripheral nerves is contained within and partially formed by a chain of tubular mesoblastic cells. 2. Phylogenetically and ontogenetically stimulus from without is the determining factor in the bio-chemical change associated with the deposition of myelin. 3. Absence of stimulus as occurs from long disuse occasions a regressive metamorphosis back to the embryonic type.

THE EFFECTS OF INJURY OF THE NEURONE.

Section of the axis-cylinder or destruction of the nerve-cell (speaking collectively), whether produced by direct trauma or by morbid processes occurring in the vascular and supporting structures of the nervous system, causes a simultaneous death-change of a characteristic chemical nature affecting the myelin sheath and axon extending from the point of injury to its terminal fibrils. This is Wallerian degeneration, or secondary degeneration of Waller and Türck. Ranvier showed that the sheath of Schwann consists of a series of tubular mesoblastic cells wrapped round the axon and that when a nerve is cut there is degeneration of the myelin and axon above the lesion as far as the next node. Each internode, therefore, represents a cell, and the fact that the degeneration does not extend upwards beyond the node allows the presumption that these tubular cells have some metabolic interaction with the contained axon and its surrounding myelin. But whatever that reciprocal metabolic interaction of the axon and its ensheathing structures may be, secondary Wallerian degeneration conclusively proves that it is controlled and determined by the nerve-cell and its contained nucleus; indeed, it is possible to conceive that the metabolic activity of the nucleus is the mainspring of this trophic influence, by the production of some bio-chemical or bio-physical stimulus which pervades the whole complex neurone even to its far distant prolongations. The Nissl method has shown that section of an axon causes changes in the nucleus and cell protoplasm. These may be temporary and recoverable or permanent and irrecoverable. The result apparently depends very much upon the degree and extent of the injury. When a peripheral nerve-fibre is cut through the trophic influence of the cell is removed from the axon and myelin sheath which it generated. These die; not so, however, the independent tubular cells of the sheath of Schwann, for these, soon after the death-change has commenced in the myelin, show signs of active proliferation. Whether, as some authorities would have us believe, they can lead to regeneration of the nerve, or whether, as seems much more probable, they prepare the way for the down-growing axon, I shall not here enter into, but that they have an important function in regeneration is undoubted, seeing that regeneration in the central nervous system, where the sheath of Schwann is absent, does not occur. Tuckett has shown that when a non-medullated sympathetic nerve is cut the nuclei and sheath-like structures remain unaltered, while the axon alone degenerates; it could thus appear that the degenerating myelin may act as a formative stimulus causing nuclear mitosis and cellular proliferation.

THE EFFECTS OF INJURY OF A NERVE UPON THE CELLS OF ORIGIN.

Only since the introduction of the Nissl method of staining has it become known that changes occur in the ganglion cells almost immediately after section of the nerve. Nissl, who first studied this, called it "*primäre Reizung*"; and Marinesco, who has made a special study of this subject, has shown that section of the hypoglossal nerve on one side is followed by three stages of change in the corresponding nucleus of origin. The hypoglossal nucleus is especially favourable for the study of this question, the nerve being purely motor. From the close proximity of the two nuclei comparative observations of the nuclei of the two sides make very evident changes, which occur as the result of section of the nerve on one side.

Marinesco divides these changes which occur in the nucleus into three phases. The *reaction* phase occurs during the first month and is characterised by a dissolution of the chromatophil elements and a displacement of the nucleus towards the periphery of the cell. This change has also been recognised by many other observers—namely, Nissl, Ballet et Dutil, Lugaro, Flatau, van Gehuchten, Sano, Erlanger, and others. The condition is not necessarily one of degeneration, as I shall show later. It is important to bear this in mind, for a similar condition may be found affecting the anterior horn cells in peripheral neuritis, where disease has led to a destruction of the axis-cylinder process. In the *reparation* phase the cell body increases in volume, the nucleus resumes its original position, and the cell shows a distinct pyknomorphic condition (abundance of stainable substance). About 90 days after the injury the process of reparation has proceeded so far that the nuclear group of the injured side is only distinguished from the uninjured side by the increase in size of the cells and their processes. A little later the cells return to their normal appearance, in point of time corresponding to the regeneration of the nerve. We may consider this cell-hypertrophy as

FIG. 1.

Hypoglossal nuclei of two sides. R indicates the swollen cells of the nucleus on the side of section during the phase of reparation. N indicates the normal side. (After Marinesco.)

evidence of the increased physiological activity necessary for regeneration. If now the hypoglossal nerve be torn out according to the method of von Gudden, or if a large piece of the nerve be resected, or any other condition arise so severe that the regeneration process in the nerve is prevented, then the reaction phase proceeds rapidly, and instead of a reparation phase of hypertrophy the cells undergo atrophy and a *degenerative* phase ensues. The accompanying diagram shows the changes in the cells of the hypoglossal

[1] Lecture I. was published in THE LANCET of June 23rd, 1900, p. 1779.

nucleus which result from section of the nerve in which regeneration is possible; it differs from tearing out the hypoglossal nerve in which regeneration is impossible. In the former case the return of the cells to normal is coincident with regeneration and return of function; in the latter the degeneration and subsequent atrophy of the cell group are brought about by such an injury as to render repair impossible and resembles therefore the effects of amputation of a limb. Recently Schäfer has shown that hemi-section of the spinal cord produces chromolytic changes in the cells of Clarke's column and subsequent atrophy, substantiating thereby the theory that these cells give origin to the dorsal and ventral cerebellar tracts, and Lloyd, a pupil of his, has also shown that the cells of Deiter's nucleus undergo similar changes, thus tending to support the observations of Risien Russell, Ferrier, and Turner, that the cells of this nucleus give origin to descending fibres in the antero-lateral region. We can thus see that this method has proved of the greatest value in determining the cells of origin of tracts of fibres. Some observers, Bregmann and Darkschewitz, have even found, after tearing out cranial nerves, a degeneration recognisable by the Marchi method and demonstrating the course of the nerve in the medulla or pons by the black-stained myelin. By the kindness of Mr. Victor Horsley I have the opportunity of exhibiting a lantern slide of the medulla showing degeneration back to the nucleus after an injury made just at the point of emergence of the nerve.

Marinesco, in his admirable work on the effects of amputation, describes slow progressive changes in the myelin sheath and says the normal refraction of the fat disappears, the colour reaction of the same tends to disappear, and following the changes in the myelin there is a change in the axis-cylinder. In addition, there appears a considerable nuclear proliferation of the sheath when the myelin has disappeared, the atrophied fibres bearing resemblance to non-medullated fibres. A recent observation by Noll, which I shall refer to later, showed that the protagon diminished in the central stump of a nerve after section, though, of course, not to such an extent as in the peripheral.

Barker, after referring to the above experiments, as well as to the studies of von Gudden and his pupils and the observations upon the nervous system following amputations, remarks: "We have seen that these observations have, partially at least, annulled the validity of Waller's doctrine of the trophic relations of the nerve cells, for after injury to an axon, in addition to the degeneration in the axon, peripheral to the lesion there are demonstrable alterations into the cyto-proximal end of the axon, and especially in the cell body of the neurone itself." The changes which occur after the amputation of limbs are probably, however, due to regressive atrophy from lack of stimulus from the structures over which the neurones presided. The changes which occur in the cells of origin of a nerve after section undoubtedly prove that the whole neurone has suffered by the injury, but there is no evidence to show that a degeneration occurs (in the sense of the chemical change to be referred to later), except in the peripheral portions of the cut nerve and in the central portion as far up as the next node of Ranvier, unless the injury is so severe as to cause such a shock to the neurone that it dies as a whole.

DISEASES OF THE NERVOUS SYSTEM AS DISTINGUISHED FROM DISEASES WITHIN THE NERVOUS SYSTEM.

The histological elements which make up the nervous system may be divided into two groups: (1) the nervous units or neurones; and (2) the supporting, protecting, and nutrient tissues. Organic diseases may start in a primary degeneration of the nervous units or neurones, or the neurones may be affected secondarily by diseases starting in the supporting, protecting, and nutrient tissues. Such are essentially diseases *within* the nervous system and include diseases of the blood-vessels, lymphatics, membranes, and special nerve connective tissue (neuroglia). These give rise to secondary degeneration, either by direct injury, inflammatory compression, or by cutting off the blood-supply.

The causes of pathological processes occurring in the nervous system may be considered under two headings—(1) external, and (2) internal; but it may be remarked that in all cases except direct injury the two groups are more or less combined. The external causes depend upon the condition of the blood and lymph by which the neurones are nourished and the excess or deficiency of normal stimulation or existence of abnormal stimulation. The internal causes depend upon the inherent vitality of the neurones themselves. In considering, therefore, the causes of degeneration of the neurone it will be necessary to point out the result of (1) failure of the blood-supply; (2) toxic conditions of the blood; (3) the effect of excess or deficiency of stimulation; and (4) inherited defects in the nervous system as a whole or in some particular groups or systems of neurones. To do this, however, in a satisfactory manner would necessitate my referring in a very superficial manner to all the diseases affecting the nervous system. I shall therefore limit myself especially to personal observations relating to some few causes of the degeneration of the neurone in each of those groups which I have studied.

Degeneration of the neurone may be studied by changes in (1) the nerve cell and (2) the axon and its sheath. By the neurone theory degeneration of the former must be associated with changes in the latter. We have also reasons for believing that degeneration primarily affecting the axon and its sheath must be associated with functional, if not degenerative, changes in the trophic and genetic centre of the nerve cell.

EFFECTS OF TEMPORARY OR PERMANENT FAILURE OF THE BLOOD-SUPPLY UPON THE NEURONE.

The effects produced by complete anæmia for varying periods of time upon the nervous elements of the spinal cord have been the subject of numerous experimental inquiries, but I am unaware of any systematic series of observations upon the effects produced by ligation of the cerebral arteries. Many clinical facts show that this is a subject worthy of attention, for the sudden loss of consciousness which results from syncope is explained by a failure of activity on the part of the nervous elements of the cortex cerebri, in consequence of default in the circulation in the hemispheres. Again, the sudden loss of consciousness in epilepsy, followed immediately by tonic spasms and then clonic spasms, has recently found a possible explanation in the series of very valuable experimental observations by Dr. Leonard Hill. He has found that artificial cerebral anæmia in cats or monkeys produced by ligation of the four cerebral arteries produces tonic spasm. If absinthe be injected, instead of causing clonic spasm it increases the tonic spasm. Then, if the clamp or ligature be loosened on a carotid so that blood flows back to the hemisphere clonic spasms almost immediately occur. This will again give place to tonic spasm on closing the artery; and again on removing the clamp, allowing the blood to flow to the hemisphere, the clonic spasms supervene. He has, moreover, shown that if all four arteries in an animal be ligatured, in the dog recovery takes place; the explanation is that collateral circulation is restored soon enough to prevent destructive changes occurring in the nervous elements. With two carotids and two vertebrals tied the dogs are for some days paretic and demented—very much in the condition of the dogs which Goltz showed after having removed the cerebral hemispheres; however, as Sir Astley Cooper and other observers have shown, these animals recover completely. Dr. Hill has been good enough to send me portions of the brains of 12 such animals operated upon, which after ligation of the four arteries were allowed to live for varying periods of time. I have examined the nervous elements with a view of determining the condition of the nerve-cells when the dog is in a state of paresis and dementia and when it has recovered so completely as to pass for a normal animal. The methods which I have adopted have been for this and all other experiments and observations referred to—the Nissl method, the Marchi, the Marchi-Pal, and rapid Golgi methods of staining. The changes observed in the brain by the Nissl method are shown in the accompanying photo-micrographs of the sections. (*Vide* Figs. 2, 4, and 5.) Before, however, speaking of the pathological changes I will again call your attention to the appearances of the pyramidal cells of the cortex, medulla, and spinal cord of a normal animal when examined by this method, for it is the most reliable we have at present for studying pathological changes by comparing the appearances presented with the normal cells. (*Vide* Figs. 1 and 3.) You will observe that, first of all, the cells have changed their shape; they are swollen up, their edges have not straight or incurved sides, but are curved outwards; the nuclei are swollen and often eccentric, and in some few of the cells may actually be extruded. When this has happened of course the cell has practically been destroyed and with it the nerve-fibre which contains its axis-cylinder projection. Another obvious sign of change, although not necessarily a destructive change, is the appearance presented by the chromophilous substance. It no longer presents those

definite figures which have received the name of Nissl bodies. Sometimes it appears as a fine dust, sometimes arranged in long threads separated from one another. One of the earliest changes to be observed is the absence or diminution of the chromophilous substance of the dendrons; moreover, the edges of the cells and the processes present a ragged instead of a clear-cut outline. Generally speaking, the changes in the chromophilous substance only do not denote destruction, but should the swelling be so great as to produce an extrusion of the nucleus the cell must necessarily die; and we can, if the animal be kept alive over 10 days, determine how many psycho-motor cells have been destroyed by the temporary anæmia occasioned by the ligation of the arteries. We can do this by examining sections of the pons, medulla, and spinal cord by the Marchi method. The number of black degenerated fibres will indicate the number of pyramidal motor neurones which have perished as a result of the anæmia. These are usually comparatively few. We may consequently say that mere swelling of the cells with very marked chromolytic changes does not mean more than functional disturbance. Mere hydration—for thus I explain the swelling—without dislocation of the nucleus from the cell, even though the chromolytic changes are very intense, does not mean death of the neurone. This is an important fact in view of the association of pathological symptoms with changes in the nerve-cell. Such microscopical changes are for the most part illustrated in the Supplement by Figs. 2, 4, 5, and 12. I would add in connexion with this series of experiments that the tangential fibres were found in most cases intact in animals that had completely recovered. We must suppose, therefore, that collateral circulation in dogs is restored very shortly after ligation of four arteries. The experiments of Ehrlich and Brieger in 1884 proved that anæmia of the lower portion of the spinal cord could be produced by ligature of the abdominal aorta, and that if the circulation was cut off for not longer than from a quarter of an hour to three-quarters of an hour only a temporary paralysis of the hinder extremities resulted, but if for one hour permanent paralysis and destruction of the nervous elements were invariably the result. Numbers of other experimenters have produced anæmia of the lumbar spinal cord by this method; and Sarbo has given a full account of the changes which occur in the cells as a result of complete anæmia lasting for from one hour to one and a half hours after ligation. The changes which he describes as occurring in the motor cells of the spinal cord as the result of complete occlusion of the circulation coincide very closely with the changes which I shall describe in other animals, especially monkeys and cats, also in dogs, which have died as a result of ligation of cerebral arteries, and in which collateral circulation was not soon enough established to prevent destructive changes. Sarbo found that ligature of the aorta for one hour in the rabbit caused a cell degeneration which was manifested by a granular destruction of the stainable substance of the cell protoplasm and a progressive homogeneous atrophic process affecting the cell nucleus. The appearances presented by the degenerating cells depended upon the time which was allowed to elapse between the ligation of the aorta and the killing of the animal—the longer the time the more evident was the cell destruction. He found no vascular changes indicating inflammations and no hæmorrhages.

The subject of cerebral anæmia is of clinical importance, as it is well known that in man ligature of a carotid for aneurysm has been followed by hemiplegia, and I have examined the brain in one such case. Dr. Hill sent me a piece of the cortex from similar situations in both hemispheres and asked me to decide by microscopical examination upon which side the patient was paralysed. This I correctly determined by the difference in the appearance of the cells of the two sides. We can understand, also, how *temporary* loss of motor or psychical function—e.g., transitory aphasia, monoplegia, hemiparesis, stupor, and dementia, or even hemiplegia—may occur in syphilitic disease of the arteries; for if collateral circulation be restored within an hour or so after the blocking of the artery, providing a thrombus does not spread to the small branches the circulation may be restored in the part and function may return in the course of a few hours or days.

In connexion with the experimental anæmia of the spinal cord produced by clamping the abdominal arteries it is of interest to note two points. The exogenous fibres of the posterior columns, together with the pyramidal tracts—tracts the fibres of which have their trophic and genetic centres respectively in the spinal ganglia and the cerebral cortex—do not undergo degeneration, whereas tracts which have for their trophic and genetic centres cells in the grey matter of the spinal cord undergo degeneration. Munzer and Wiener's experiments showed this, and recently I had the opportunity of examining a case of acute anterior poliomyelitis in an infant 14 days after the onset of the disease. In this case also the degeneration was limited entirely to those tracts the fibres of which arise from cells in the spinal cord, and I cannot help thinking that this case was of vascular origin—possibly spasm of the large artery which comes in to supply the lower end of the spinal cord. Ballet and Dutil found from their experiments that complete anæmia of the lower end of the spinal cord for a few minutes (by clamping the aorta) produced chromolytic changes in the anterior horn-cells. I have also found that swelling of the cells previously described, with chromolytic appearances, may come on within less than 10 minutes after ligation of the four cerebral arteries, for occasionally one of Dr. Hill's dogs or cats has died from the effect of the anæsthetic very shortly after the four arteries have been ligatured. It may be said that this was due to the anæsthetic. It was not, however, so, for occasionally I have had the opportunity of examining the brain tissues of animals which have died from the anæsthetic before any of the arteries were tied, and these showed no changes. (*Vide* Fig. 3, Supplement.) We may therefore consider that the changes noted are due to the cessation of the circulation. Dr. Hill has shown that the cortex of these animals is readily excitable, and in some cases even hyper-excitable to, electrical stimulations, epilepsy being produced. Consequently, this change in the appearance of the cells can be associated with increased electrical excitability, or, perhaps more likely increased tendency of stimulus to spread—a fact of considerable importance when put beside another fact—viz., that I have found in status epilepticus the cells presenting in many instances this swollen dropsical appearance, with marked changes in the chromo-philous substance (*Vide* Fig. 13.) In general paralysis of the insane epileptiform seizures are of frequent occurrence, and when they do occur in the progress of the disease I have found invariably that in proportion to their frequency and severity there is a large number of recent degenerated fibres in the pyramidal systems. Consequently, we may assume that epileptiform seizures in this disease are associated with death of the cortical pyramidal motor neurones, due in some instances (I believe in great measure) to vascular disturbance of the cortex. (*Vide* Fig. 9.) The disease itself is, I consider, primarily a progressive decay of the nervous elements, but owing to the establishment of a vicious circle numbers of neurones are destroyed by circulatory disturbances.

I will now pass on to the effects of *experimental anæmia*, produced by ligature of arteries in which collateral circulation was not restored soon enough to prevent destructive changes in the nerve-cells. If cats or monkeys have all four arteries ligatured, or if, instead of ligaturing both vertebrals and both carotids in dogs, a subclavian be tied instead of one of the vertebrals, a sufficient collateral circulation cannot be restored soon enough and the animal dies in a period varying from a quarter of an hour to 24 hours. The time variation no doubt depends upon the effect produced upon the medulla by the anæmia. The changes observed in the cells of animals which have thus lived some hours are different entirely to those which have been previously described. There is not merely a physical change due to hydration; this may or may not be present, for sometimes the cells are not swollen, but are even shrunken. The staining reaction is also different, showing a bio-chemical as well as a biophysical change; sometimes the whole cell stains uniformly but not with a brilliant colouration. (*Vide* Fig. 7.) If a double stain has been used, for example, methyl-blue and saffranine, the whole cell may be stained a uniform dull purple, the processes, as well as the body of the cell, having a homogeneous instead of a differentiated reaction to the dyes—a condition which is similar to that met with in hyperpyrexia and to the appearance described by Sarbo in the motor-spinal neurones of the lumbar-sacral region after clamping the abdominal aorta. These animals prior to death, according to Dr. Hill's notes, generally had epileptiform convulsions. One animal, a monkey, presented the most instructive changes, because after ligature of both carotids and one vertebral it was paretic and demented, took no notice of anything, and behaved exactly like an

animal with its higher cortical centres destroyed, which indeed they were. It was killed on the fifth day and examination of the brain of this animal exhibited the following changes, which are shown in the accompanying photo-micrographs. The nerve cells and all their processes were uniformly stained a diffuse dull purple and were readily discerned on account of the dilatation of the lymph space in which the neurone lies; scattered through the protoplasm of the cells was a fine dust of coloured particles; the apical processes of the cells were either destroyed or twisted like corkscrews; in many the dendrites had disappeared, but in some of the cells the axis-cylinder could be traced with unusual distinctness, probably due to some swelling; and one cell was observed which is of interest because the axis-cylinder process could be traced some distance, giving off lateral twigs that seemed to merge into a general network, supporting, therefore, the diffuse nerve network theory of Golgi. (*Vide* Fig. 6.) Many of the cells were swollen up, as Fig. 8 shows, and others were shrunken. Some could be seen with phagocytes sticking to them and devouring the dead cells. Although one observed these very marked changes in the cells by the Nissl and Weigert iron methods, yet by the chrome-silver method the cells appeared normal, showing the gemmules on their processes with unusual distinctness (*vide* photo-micrographs 10 and 11). The brains of other animals, dogs and cats, were examined by similar methods with the same results. It may be that the chrome silver only stained those cells which had not undergone disorganisation; but none of the cells when examined by the methods I have alluded to exhibited normal appearances as regards their bio-chemical condition nor was the animal physiologically normal. I have therefore come to the conclusion that the rapid silver method of Golgi which stains only a few cells, although undoubtedly of the greatest value for anatomical purposes, yet for acute pathological findings is unreliable. Many of the statements which are made with regard to the effects of drugs, anæsthetics, and acute disease, as represented by the appearances of the gemmules on the processes of the cells, as made evident by the chrome-silver method, are therefore open to serious objections. It is very probable that the method of Cox might be found of value in determining changes in the cells of the cortex in chronic disease and possibly also in acute disease. I have not mentioned that in most of these brains experimented on a striking naked-eye feature was the distension of the veins of the cortex with blood, and frequently there was sub-pial hæmorrhage; also the peri-vascular lymphatics were usually distended with fluid. No doubt, both the increase of blood in the superficial veins, the increase of fluid in the peri-vascular lymphatics, and the general œdema of the brain itself were proportional and compensatory to the diminution of the arterial blood. The arteries were generally empty, likewise the capillaries. In some cases the peri-vascular lymphatics and membranes were the seat of a marked cellular infiltration resembling the condition found in general paralysis. Collateral circulation to the medulla, by which the respiratory centre is kept going, is essential to life. Such collateral circulation when established—and if the animal lives it must have been established—would be accompanied by blood-supply to the choroid plexus, and the cerebro-spinal fluid, which functions as the lymph of the brain, would consequently be secreted in abundance and soon compensate for the diminution caused by the failure of the arterial circulation. Thus the increase of cerebro-spinal fluid would account for the œdema of the brain, the dropsical condition of the cells, and the dilatation of the peri-vascular lymphatics.

Some experiments which I made five years ago with Professor C. S. Sherrington, and which we have never found opportunity to continue and develop, are, I think, of sufficient importance to mention with this subject of anæmia. We found that compression of the spinal cord in the dorsal region, even enough to produce indentation, would not stop the passage of impulses generated by faradaic excitation of the cerebral cortex to the lower spinal motor neurones. In two animals—monkeys—upon compression with an eye removed from a cat immediately after death, fixed at the end of a glass tube attached to a horizontal lever in such a way that compression of the cord could be made by this living tissue and the pressure measured by means of a sliding weight, we found that *extremely light pressure* upon the lumbar spinal cord was sufficient to abolish conduction in from one minute to one and a half minutes after the pressure was applied, and upon removing the pressure conduction in a minute or two returned because faradaic excitation of the cortex was responded to by an appropriate muscular contraction. The experiment was repeated a considerable number of times and I have no doubt that in these two animals we managed to produce an anæmia of the grey matter of the lumbo-sacral spinal cord by compression of the large artery that comes in about the third lumbar root, causing a physiological block in the synapsis formed by the terminal arborisations of the axons of the cortical pyramidal neurones with the dendrons of the spinal motor neurones.

EFFECTS OF HÆMORRHAGE.

Large quantities of blood may be lost to the body from hæmorrhage without producing any appreciable changes in the nervous elements. Voss has performed a number of experiments on animals, endeavouring to produce degeneration of the spinal cord by injections of pyridine sufficient to produce a severe anæmia, but without result. Likewise, numbers of cases of pernicious anæmia, leucocythæmia, and exhausting blood disease are not found associated with any noticeable change in the neurones. I have examined the nervous system in several cases of pernicious anæmia (in one of which the corpuscles had sunk to 500,000 per cubic millimetre), in cases of very severe anæmia from hæmorrhage and exhausting disease, and leucocythæmia (in which the red corpuscles were reduced to one-fourth and in which the whole of the brain and vessels showed congestive stasis and hæmorrhages), and yet the nerve-cells of these cases of extreme anæmia showed little or no bio-chemical change, the Nissl granules appearing quite normal (*vide* Fig. 1). Nor did sections of the nervous system in these cases show any degenerative changes by the Marchi method. It is, therefore, more than probable that those cases of combined sclerosis of the spinal cord, sometimes met with in pernicious anæmia but more often accompanied by grave anæmia, are due to some other cause than the deficiency of red corpuscles. Probably in the blood there is some neuro-toxin which produces this primary systemic degeneration of neurones with long axis-cylinder projections, forming the long tracts in the spinal cord; or it possibly may be that those individuals who suffer from this nervous affection have an inherent defective vitality or lowered durability of the nervous system which, in combination with the defect of the blood-supply in quantity and quality, leads to degeneration. The fact that inanition, even extreme inanition, produces little or no loss of weight in the nervous system and hardly any changes of importance in the microscopical appearances of the nervous elements is of considerable importance, for it seems to show that the metabolic exchange which goes on in the nervous system is either especially protected by the metabolism of the whole body being subservient to it, or that however important the metabolic exchange in the nervous system may be, in amount it is not considerable. Those primary wasting diseases affecting systems, communities, and groups of neurones, associated one with another by functional relationship rather than by anatomical or vascular supply, insidious in origin and progressive in course, cannot be essentially due to anything else than a metabolic failure on the part of the neurones themselves (which, after all, are but complex differentiated cells) to assimilate from the blood the necessary materials to maintain their specific vital energy. They die in a manner the reverse of their evolution, the most distant parts of the tree—namely, the terminal twigs (collaterals)—being the first to go, then the branches, and last of all the trophic and genetic centre itself, the cell body and its nucleus.

Dr. Watson in my laboratory has carefully compared the sections of these experimental anæmic brains with a large number of sections of general paralysis. He has made drawings of cells which he considered presented similar appearances in the two conditions and the result of his observations appears to show that whilst a large number of the cells exhibit changes indicating chronic atrophy, a considerable number of cells in general paralysis present acute destructive changes similar to those met with in cases of experimental anæmia from arterial occlusion, but they are scattered about in small foci. Arteries in this disease are seldom occluded, whereas congestive stasis in the arterioles, capillaries, and veins, even thrombosis in the latter, is common; and we may consider that the destruction of the nervous tissue of the cortex may be accelerated by inflammatory stasis. It is curious how general it is to find the brain atrophy in this disease limited particularly to the

frontal and central convolutions, whereas the occipital and temporal lobes escape in great measure. Over the atrophied regions the pia-arachnoid membrane is thickened and adherent. Many observers, including Flechsig and Mickle, consider that the region of atrophy corresponds particularly with the area of distribution of the internal carotid arteries. I think, however, the area of atrophy and pia-arachnoid thickening more closely corresponds with the distribution of veins which open into the longitudinal sinus, and from a large number of observations made by myself and my assistants I have come to the conclusion that venous congestive stasis in that portion of the brain plays an important part in the symptomatology and pathology of general paralysis. I shall, however, have occasion to refer to this more fully later.

Mendel and many authorities believe that general paralysis is a primary inflammatory condition of the vessels and meninges with secondary destruction of the nervous elements. In 1884 Mendel, who believed that the necessary factors were (1) diseased walls of vessels allowing transudation of plasma and leucocytes, and (2) hyperæmia of the brain, claimed to have produced this condition artificially by rotating dogs upon a table with the heads outwards. Fürstner repeated these experiments over a considerable period of time, causing degenerative changes in the cortex, with secondary descending changes in the cord. There are many reasons, however, which will be alluded to later, for considering general paralysis to be a primary progressive decay of the nervous elements with secondary changes in the vessels and membranes.

ALTERED STATES OF THE BLOOD; HYPERPYREXIA.

The study of the lesions of nervous centres due to hyperpyrexia is of great interest from a theoretical as well as from a practical point of view—from the former because the exact knowledge of the nature of the lesion might be able to throw some light upon the nature of the pathological process and the clinical symptoms which accompany hyperpyrexia; from the latter because it would indicate the direction of treatment. Goldscheider and Flatau, who for the first time described lesions of the nerve cells in the rabbit caused by experimental hyperthermia, came to the following conclusions:—1. If the temperature remained about 106·7° F. the cells of the spinal cord examined by Nissl's method presented no appreciable modifications. 2. If the temperature exceeded 109·5° F. the lesions of the nerve-cells of the spinal cord were very definite, extending throughout the whole of the grey matter. 3. The duration of the experimental hyperthermia they showed to be a very important factor in the production of the lesions, for if the animal be kept for some hours between 107° and 108° F. the same effect on the nerve-cells is produced as occurs in a much more rapid manner when the temperature is raised to 109·5° F.—viz., swelling of the cell and its processes; diffuse staining of the whole neurone with disintegration of the chromophilous substance; and around the nucleus the chromophilous elements still persisting to some extent as if the outer portions of the cell were more affected than the central. The nucleus has an irregular and often an angular appearance.

Marinesco has also done some valuable work on this subject; he found that if artificial hyperthermia in animals be produced, so that the temperature is raised to 116·6° F. in the rectum, the animal died in 30 minutes with characteristic changes in the nerve-cells. He also remarked that these changes occur at a lower temperature when the duration is increased. In five cases of hyperpyrexia occurring in the human subject which I have examined, and in which the temperature reached 109° F. or more, I have found the same bio-chemical change revealed by the Nissl method in all the cells of the central nervous system. I have, however, met with cases of status epilepticus in which the temperature was from 107° to 107·5° F. for a short time without showing this change. Again, I have seen in one case a moderate degree of chromolysis and diffuse staining in prolonged pyrexia varying from 103° to 106·5° F. This was in a case of typhoid fever, and it might very well be that the change was due to the influence of the toxin. In fact, in most of the human cases the changes could be ascribed to the conditions which produced the fever and not to the influence of the increased temperature of the blood. Some of the cases which I have examined, however, were sudden—e.g., one was probable sunstroke, another was a case of hæmorrhage into the spinal canal and the base of the brain in general paralysis, and another was a case of Congo sickness. The photo-micrograph (Fig. 14) shows three anterior horn cells from the last case. You will observe the diffuse staining of the processes and of the body of the cell. Another case of Congo sickness in which the temperature never went above 103° F. showed no change in the Nissl granules and the cells presented a fairly normal appearance. I have examined the nerve-cells in many cases of septic poisoning and other diseases, but I have never seen this change unless there was either hyperpyrexia or prolonged high fever (*vide* Fig. 1, Supplement). The fact that experimental hyperthermia in animals produces this bio-chemical change in the protoplasm of the cell indicates that it is the altered temperature of the blood which is the cause in the human subject of these changes. Another point is that if the sections are stained with methylene blue and saffranine the protoplasm is stained a uniform dull purple instead of being differentiated. Now we have seen that the healthy cell shows a differentiation of staining; the Nissl granules which have been shown to be a nucleo-albumin are no longer visible in hyperpyrexia; and there is no longer the differentiation of a stainable and an unstainable substance with basic dyes. There must, therefore, have been produced by the fever a profound modification of the protoplasm of the cell. There are two points to be considered in this—viz.: (1) the fact that a temperature of 109·5° F. can bring about rapidly this coagulation process and death of the protoplasm, also that it affects first and most markedly the periphery of the cell; and (2) that prolonged high temperature of from 107° to 108° F. will produce this same coagulation process.

Halliburton has shown that there are three proteids in nervous matter—viz.: (1) a neuroglobulin which is coagulated at 116·6° F. (47° C.); (2) a nucleo-proteid which is coagulated at 132·8° F. (56° C.); and (3) a neuroglobulin which is precipitated at 167° F. (75° C.)—and that these three bodies can be separated out by fractional coagulation. We see, then, how it is that Marinesco found that animals in which the temperature is raised to 116·6° F. (47° C.) died almost immediately with changes in the cells indicating coagulation in the protoplasm. No doubt this neuroglobulin is precipitated at once, and it occurred to me that if a solution of neuroglobulin were subjected to long heating it would coagulate at a much lower temperature. I mentioned the matter to Dr. W. D. Halliburton who was of the same opinion, and we have therefore made experiments on this subject, and we find that prolonged heating for four hours, for example, will cause coagulation of the neuroglobulin at a temperature of between 107·6° and 109·4° F. (42° to 43° C.). Moreover, Dr. T. G. Brodie and Dr. Richardson have shown that in frog's muscle the tissue loses its irritability at that temperature at which coagulation is induced first in one of its constituent proteids. We have thus a chemical explanation of the cause of death of the protoplasm, also of the changes manifested by it as regards staining.

Goldscheider and Marinesco have shown experimentally that a certain degree of this coagulation change may take place without death of the cells; for if they produce artificially hyperthermia in animals for only a short time and then kill them they find a commencement of this coagulation process to have taken place. But these animals would have lived had they not been killed for the purpose of examination, consequently we may suppose that a certain degree of bio-chemical change, associated with coagulation of neuroglobulin, may take place without destroying the protoplasm to such a degree as to render it incapable of recovery. I think this entirely coincides with and explains the remission of symptoms, the return of consciousness, and the recovery which often takes place in some forms of hyperpyrexia when the cold bath method is resorted to without delay.

It is a matter of speculation whether structures later developed and functionally more highly differentiated, as the cells of the cerebral cortex, are more highly susceptible to fever and succumb more readily under it. Possibly high temperature of the surrounding blood and lymph is more readily felt by the small cells of the superficial layers of the cortex on account of the increased surface exposed and delirium followed by coma may be the result of this, although the vital centres in the medulla may still be able to perform their functions.

The diffuse staining of the cells indicates a diffusion of the nucleo-proteid through the substance of the cell body and its processes. We may suppose, therefore, that the

essential achromatic fibrillary substance is killed and that the nucleo-proteid which is normally contained in the reticulum of the cell in solution has soaked into the achromatic substance and given the protoplasm the uniform staining which, when once general, is quite characteristic of hyperpyrexial death, as I have been able to verify in several instances. These facts, pointing to an actual bio-chemical change involving the death of the protoplasm when the temperature remains for some hours above 109° F., support Dr. Osler's view that cases of paradoxical temperature occurring in women and termed "hysterical hyperpyrexia" are frauds as a rule, although he states that other cases have to be accepted, the explanation of which is impossible under known rules—in fact, it is quite conclusive that temperature above 114° F. is incompatible with life, even for a short time.

TOXIC CONDITIONS OF THE BLOOD AND LYMPH.

The primary degenerative changes occurring in the neurone are usually the result of poisonous conditions of the blood and lymph. The poisons may be produced: (1) within the body by perverted functions of the organs or tissues (auto-intoxication); (2) by the action of micro-organisms upon the living fluids and tissues of the body whereby various toxic substances are produced, either locally or generally, and by their escape into the blood cause degenerative changes; and (3) the poisonous substance may be introduced into the body from without. Just as we know that various alkaloids used in medicine have a specific affinity for particular portions of the nervous and muscular systems, so we find that certain poisons which produce degeneration and disease have a special selective influence. We know that strychnine, for example, has a special selective influence upon the spinal cord, increasing reflex excitability. Goldscheider and Flatau have shown that strychnine poisoning produces changes in the motor anterior horn cells closely corresponding to those observed in tetanus poisoning; these changes may be observed as commencing three minutes after injection of the poison if a sufficient dose be given. As in tetanus poisoning there is no close relationship between the morphological change and the degree of functional disturbance. These observers have also shown that acute cell changes occur as a result of malonitril poisoning ($NC—CH_2—CN$). Injection of hyposulphite of soda neutralises the toxic effects of this poison and prevents the changes in the nerve-cells. Experiment has shown that curare poisons the motor end plates, and recently, in an interesting communication, Dr. Augustus Waller showed how a very slight difference—a molecule of water—will alter the action of an alkaloid. Thus he has shown that veratrin has a special selective toxic action upon muscle, while proto-veratrin acts upon nerve. These facts, together with others which I will cite in connexion with degenerative changes produced by the selective action of poisons in the production of disease, indicate a special chemical affinity of certain protoplasmic structures for certain particular poisons: and the corollary is that probably the protoplasm of every nerve structure having a different function varies to some slight degree. There is a difference which is not to be detected by chemical methods, but the varieties of which are clearly shown by the difference in their physiological reaction to an altered environment. Perhaps one of the most striking demonstrations of this selective affinity of protoplasm for particular chemical compounds is shown by the intra-vitam methylene blue method introduced by Professor Ehrlich, and which in the hands of many investigators has produced such marvellous revelations into the minute structure of the nervous system. Ehrlich found that only those aniline dyes which contained sulphur in their composition were suitable for yielding the reaction. Examples of the special selective influence of the various poisons which produce disease are very numerous. There is a whole class of poisons which affect especially the peripheral nerves; and it is a debateable point whether in peripheral neuritis the whole neurone suffers, or whether the changes which have been found in the cells of origin of the peripheral nerves and in the spinal cord and ganglia are due primarily to the action of poison or whether they are secondary to the destructive effects of the poison upon the outgrowths of the cells—viz., the axis-cylinder processes of the peripheral nerves. Again, there are a number of poisons—diphtheria, botulismus, &c.—in which the fatty degeneration of the muscle is far in excess of what could be reasonably attributed to the changes found in the nerves. Probably the vulnerable point of the neuro-muscular mechanism is at the junction of the nerve with the muscle. Comparative studies, however, which would show degenerative changes in the motor end plates are extremely difficult, and it is rather by inference than direct observation that we must believe the poison to act upon this structure.

The effects of a poison in producing degenerative changes may be immediate or remote, even distantly remote. Thus some poisons on entering the system may produce sudden, or almost sudden, effects—viz., strychnine or absinthe. Others produce more or less remote effects—viz., rabies, tetanus, or diphtheria; others produce distantly remote effects, as syphilis.

Again, many poisons in order to be effective must accumulate in the system—viz., the mineral poisons, lead, and arsenic. Dixon Mann states that it has been shown that lead exists in the brain in appreciable quantities in encephalitis saturnina.

SELECTIVE INFLUENCE OF POISONS.

The most remarkable example of selective influence which I can cite is tetanus. The bacilli are found only in the wound—they must, therefore, be comparatively few in number, yet they elaborate a virulent poison which affects particular groups of neurones. The fact that lockjaw in man nearly always occurs first shows that the poison selects the motor nucleus of the fifth nerve. This, however, is not the case in animals when poisoned by the tetanus toxin. We do not know whether this selection is due to some anatomical condition which favours the absorption of the poison or whether it is the result of a bio-chemical affinity of that particular group of neurones for the poison. It is remarkable that experiment has shown that the tetanus toxin if mixed with an emulsion of nervous matter before injection into an animal loses its toxicity, showing thereby its affinity for nervous matter. Goldscheider and Flatau, who have studied the changes in the nerve-cells of animals that have been injected with the tetanus toxin, describe conditions which they consider characteristic of the action of this particular poison. Examination of the cells of the anterior horns of the spinal cord shows enlargement and paller of the nucleus, swelling and crumbling of the Nissl bodies, and fine granular disintegration of the Nissl bodies associated with swelling of the whole cell.

Marinesco maintains that in nerve-cells subjected to the action of the tetanus toxin two independent phenomena can be distinguished, one the result of the chemical combination of the poison with the cellular protoplasm and the other the wearing out of the cell from excessive functional activity. He agrees with the conclusion of Goldscheider that there is a chemical transformation exalting the excitability of the motor neurones. There is a general consensus of opinion among authors who have worked at this subject, including those named, that the injection of tetanus antitoxin retarded these cell changes and caused a more rapid return to normal. It is only right to say that Courmon, Doyen, and Pairot, from experimental results of their own, deny that tetanus toxin produces any alteration in the cells of the anterior horns, and certainly specimens of the medulla and pons from two cases of tetanus in the human subject which I have had the opportunity of examining showed no certain noteworthy change.

Another poison, probably of microbial origin, rabies, has a special selective influence upon the medulla, although the whole nervous system is charged with the poison, pointing, therefore, to the fact that there is some special affinity of the neurones in the medulla for the poison. I have had the opportunity (through the kindness of Dr. Herbert Durham) of examining the medulla of a child who died from hydrophobia in Guy's Hospital six weeks after having been bitten by a mad dog. The greater number of the cells of the motor nuclei of the medulla showed marked degenerative changes, indicating a slow process of coagulation necrosis—viz., uniform diffuse staining with absence of Nissl granules; there was also a great deal of nuclear proliferation in the glia substance, denoting an irritative as well as a degenerative process. Dr. Herbert Durham was also kind enough to give me the nervous systems of three animals which had been poisoned with the toxin of "bacillus botulinus"—first described by Ermenghen who discovered the organism in unsound meat and fish eaten by people who had died with a characteristic group of symptoms. Such a condition in this country would probably have been called "ptomaine poisoning." The changes which I have

found in the nerve-cells are similar to those described by Marinesco who has specially studied this subject. There is a marked chromolytic change, some cells being much more affected than others (*vide* photo-micrograph, Fig 16). The poison is extremely virulent and if a minute dose is given so that the animal does not die before the end of a week or so the changes in the nerve-cells are not more marked than in an animal which dies within 24 hours. The most noteworthy change, however, which I have found in an animal which survived eight days was the extreme fatty degeneration of the heart and striped muscles of the body (*vide* photo-micrograph, Fig. 17). The liver also had undergone extreme fatty degeneration. Seeing that the peripheral nerves showed no degenerative changes one may conclude that the poison acted more particularly upon the muscle or the nerve endings in muscle. As I have already had occasion to point out chromolytic changes of themselves do not indicate death of the nerve-cell but rather functional depression. Seeing that there were no changes in the peripheral nerves or in the cord observable by the Marchi method it is probable that the changes in the nerve-cells were mostly related to functional depression rather than actual destruction, and might have arisen from circulatory failure in the central nervous system due to paralysis of the heart. Marinesco noticed that the chromatolysis generally occurred first at the periphery of the cells; as the morbid process advanced there was destruction of the achromatic fibrils and formation of vacuoles. I have not observed vacuolisation, only extreme chromatolysis. Kempner and Pollak have found similar changes in the nerve-cells, and have further observed the slow restoration of the cells to normal under the action of specific antitoxin. Somewhat similar changes have been described by several authorities in the anterior horn-cells of the spinal cord and medulla of animals injected with diphtheria toxin. Dr. Sidney Martin separated the chemical toxin of diphtheria and produced by its injection into animals marked fatty degeneration of the muscles which he attributed to an associated change in the nerves. In four cases of diphtheritic paralysis in man which I have examined I was able to find fatty degeneration of the heart muscle in all; in only one case could I find Wallerian degeneration of the peripheral nerves, and in only this one case could I find any chromolytic changes in the motor-cells of the medulla.

Abrin and ricin-toxic proteid bodies.—Dr. Sidney Martin long ago showed that the seeds of jequirity contained a proteid body which if injected into an animal profoundly modified the blood and caused its death. This body, abrin, together with a similar body, ricin, obtained from castor-oil seeds, were made the subject of a most valuable research by Ehrlich. Very small quantities of these poisons injected into animals cause profound modifications in the appearance of the nerve-cells. The Nissl bodies disappear, the cells are stained uniformly, and show a fine-coloured dust all through the protoplasm of the cell and processes. All the nerve-cells are affected, and the cause of these altered appearances would indicate a changed condition of the blood and lymph rather than a selective influence of the cells for the poison. I have examined the nervous systems of two guinea-pigs which Dr. Durham kindly sent me. One animal died 45 hours after the injection of 0·2 milligramme of abrin globulin and all the cells showed the appearances described (*vide* photo-micrograph, Fig. 15). The other animal had been immunised and then in the course of a week received an amount equal to 60 fatal doses without succumbing; the nervous structures in this animal showed far less change—most of the cells exhibited Nissl granules although many showed more or less advanced chromolysis. Berkeley has studied the changes produced in the nerve-cells by ricin.

Absinthe.—Dr. Leonard Hill, while making his experiments upon the cerebral circulation, had occasion to inject animals with absinthe. He sent me the nervous tissues of these animals and I was greatly surprised to find that changes were discoverable in the cortical pyramidal cells of animals which had died in fits within 10 minutes of the injection of five minims of the poison. The cells were, however, not all equally affected, some groups of cells showed marked chromolytic change, while others showed no change. Animals that had lived two hours after the injection of a smaller dose (two minims) likewise showed unequal effects. The cortical pyramidal cells were, however, always more affected than the motor cells of the anterior horns of the medulla and spinal cord; and one therefore naturally asks, Can we account for this by supposing that the cells have each a specific vital resistance? That this may be so is perfectly clear from the fact that such poisons as abrin, botulin, ricin, &c., produce when injected much more marked effects on some cells of the same function than on others. In the case of absinthe it must be remembered that we have to do with an oily fluid, and it is possible that really the fits may have been due to irritation caused by minute capillary emboli of an acrid and poisonous nature becoming lodged in the minute vessels of the cerebral cortex. The capillaries in the cortex are extremely small and would favour such lodgment. Such an explanation seems possible, for if absinthe be injected subcutaneously, even in large quantities, fits are not produced (Hill). I am also indebted to Mr. Victor Horsley for the nervous system of a cat which had received two minims of absinthe intravenously injected. The animal had three fits and survived two hours. The changes in the motor cells of the brain and cord corresponded to those above described.

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DESCRIPTION OF PHOTO-MICROGRAPHS OF SUPPLEMENT.

1. Normal pyramidal Bett's cell, cortex cerebri, stained by the Nissl method. The preparation was made from the brain of a man who died from an obscure septic affection after eight weeks' illness. Towards the end of life he suffered from severe hæmorrhages, producing the most extreme anæmia, the blood containing a large number of nucleated corpuscles. There was a remittent pyrexia during the whole period; the fever, however, never surmounted 103·5° F. The body was extremely emaciated at death. He remained conscious to the end, and it is interesting that this combination of factors was insufficient to produce bio-chemical changes in the nerve cells. Magnification 700 diameters.

2. Section of the cortex cerebri of a dog after ligation of both carotids and both vertebrals. Magnification 250 diameters.

3. Section of the cortex of a cat that died under the influence of an anæsthetic prior to ligation of arteries. Normal appearance of the cortical pyramidal cells stained by the Nissl method. Magnification 300 diameters.

4. Pyramidal cell of a dog after ligation of two carotids, one vertebral and one subclavian. Great swelling of the nucleus, advanced chromatolysis most marked at the periphery of the cell. Magnification 700 diameters.

5. Pyramidal cell of a dog after ligation of arteries, showing extreme chromatolysis with commencing extrusion of the nucleus. Magnification 700 diameters.

6. Axis-cylinder process from a large pyramidal cell, the lymph space around which is distended, and showing the collateral side branches apparently forming a diffuse nerve network. Magnification 1000 diameters.

7. Pyramidal cell with diffuse staining from a cat after ligation of four cerebral arteries. Magnification 500 diameters.

8. Pyramidal cell from a monkey five days after ligature of two carotids and one vertebral, showing swelling in the pyramidal cell with diffuse homogeneous staining owing to the stainable substance being scattered through the protoplasm of the cell as a fine dust.

9. Section of the cortex of a case of general paralysis, showing acute cell changes. Magnification 250 diameters.

10. Cell of Purkinje from the cerebellum of a dog 12 days after

ligation of four arteries, showing absolutely normal appearances. Magnification 150 diameters.

11. Pyramidal cell from the cortex of a monkey, five days after ligation of two carotid arteries and one vertebral artery. Stained by the rapid Golgi method, showing gemmules on the dendrons and all the external appearances of a normal cell. Magnification 150 diameters.

12. Section of the pyramidal tract of the spinal cord of a monkey 10 days after ligation of two carotids and one vertebral. A few scattered degenerated fibres are revealed by the Marchi method. These were more numerous on the side opposite to the hemisphere on which the vertebral was ligatured, but altogether they were not more than 60 in number, so that only an inconsiderable number of the psycho-motor cells had perished as a result of the anæmia. This quite conforms with the fact that the animal had returned to the normal physiological condition when it was killed with chloroform. Dogs with four arteries ligatured and kept alive over 10 days frequently showed that a certain number of the psycho-motor neurones had perished, but the numbers were inconsiderable.

13. Swollen œdematous cell from the top of the ascending frontal convolution with diffuse staining and absence of Nissl granules from a case of status epilepticus. Magnification 700 diameters.

14. Section of the spinal cord of a case of Congo sickness with hyperpyrexia in which the temperature reached 109° F. prior to death. The whole of the cells throughout the central nervous system showed a diffuse homogeneous dull staining. The Nissl granules had entirely disappeared from the processes and the body of the cell and the stainable substance had a fine dust-like appearance. The processes are unusually distinct on account of the diffuse staining, the nucleus is clear and swollen, faintly stained, and the nucleolus is deeply stained. Magnification 400 diameters.

15. Anterior horn cell of the spinal cord from a guinea-pig which died 45 hours after injection of 0·2 milligramme of abrus globulin. Magnification 400 diameters.

16. A section of the anterior horn of the spinal cord of a rabbit 21 hours after injection of 0·01 cubic centimetre of botulismus toxin, which killed the animal. The whole of the cells throughout the central nervous system showed more or less a marked chromolytic change, as indicated in the photo-micrograph. Magnification 250 diameters.

17. Section of the diaphragm of a guinea-pig which died on the eighth day after injection of 0·0005 cubic centimetre of botulismus toxin containing 2 per cent of solids. The muscle was stained by the Marchi method and shows that quite one half of the fibres have undergone acute fatty degeneration. The dense black masses are fat cells; the degenerated muscle fibres are indicated by the diffuse black staining. The musculi papillaries of the heart showed even more marked fatty degeneration.

Figs. 1, 2, 3, 4, 5, 7, 8, 9, 13, 14, 15, 16 are photo-micrographs of preparations stained by the Nissl method. Fig. 6 was stained by the Weigert iron method. Figs. 10 and 11 were stained by the rapid Golgi method. Figs. 12 and 17 were stained by the Marchi method.

The Cavendish Lecture

ON

THE APPLICATION OF PATHOLOGY TO SURGERY.

Delivered before the West London Medico-Chirurgical Society on June 22nd, 1900,

BY HENRY T. BUTLIN, F.R.C.S. ENG., D.C.L. DURH.,

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[MR. BUTLIN commenced by saying that the subject of his present lecture had been in his thoughts for many years but had had to be put aside owing to the pressure of other work. He described how he had searched the records of ancient surgery in a vain endeavour to ascertain whether any of the early and firmly established operations had been initiated from a study of the pathology of the disease. First of all there was the science of pathology and what surgical inventions did come about were the result of combined observations of many men or at least of more than one. Down to the end of the eighteenth century there was but one surgical operation founded on pathology and invented and put to the test by the surgeon who had studied the pathology. This was the Hunterian operation for the cure of aneurysm. Mr. Butlin continued:—]

In spite of Hunter's example there are very few surgical inventions during the first half of the nineteenth century which can be shown to be founded on the principles of pathology. One of the best examples is the introduction of subcutaneous surgery by Stromeyer, on the foundation of experiments and observations made by Hunter half a century previously. The idea had occurred to Delpech, but he does not appear to have carried it out, and Astley Cooper had divided the palmar fascia for the relief of Dupuytren's contraction. So that here we have once more an illustration of the influence of several minds in the invention of a new method of treatment. The idea occurs to Delpech, and he suggests it; Cooper applies it in a certain limited sense: Stromeyer puts together the pathology, the suggestion, and the limited application, and introduces to the world an admirable invention. I confess to a great sense of disappointment at the fruitless result of my research. Nor was I more fortunate in finding examples of the first two relations of pathology to surgery; and I could now more easily understand how, 35 years ago, men who were disinclined to the study of pathology could make an excellent case in defence of the view that pathology is of no use in surgery.

In the early years of the second half of the nineteenth century there was little change in the relation of pathology to surgery. There was little teaching of pathology, and it would then have seemed very improbable that a new system of surgery would shortly be founded on pathology. I have elsewhere sketched the condition of the study of pathology about the year 1850,[1] especially in Great Britain, and have shown how small a hold it had yet taken on the minds of teachers or students. Yet there were even then signs of approaching change, and the most advanced and enlightened teachers were beginning to found their teaching of medicine and surgery on a more scientific basis. I have little doubt that this was part of a general movement in favour of scientific training which began about the fifties and early sixties, which questioned the propriety of the old methods of general education and desired to see them replaced either in whole or in part by science teaching, and which has since found its expression in technical and science schools, in laboratories, in science scholarships and prizes. The art of medicine could scarcely fail to feel the influence of this general movement, but the new leaven would probably have been very slowly infused into the teaching of our profession had not an event occurred which revolutionised the practice of surgery and did more in a few years to lay the foundation of surgery on pathology than had been done in as many previous centuries. In the years 1867 and 1868 there appeared in THE LANCET and *British Medical Journal* the first papers by Professor Lister on the subject of antiseptics, and his is the next great example, after Hunter's, of the discovery of a pathology and the invention of a treatment by one and the same individual. My own recollection of its early application in London is almost ludicrous. In 1868 I was house surgeon to Mr. Paget (afterwards Sir James Paget). We happened to have in the wards a man, about 40 years of age, with caries of the spine and a large abscess in the back. The results of the treatment of such cases were in those days lamentable and the man was left for some days in bed untreated. But one afternoon Mr. Paget came down and said he would try a new method of opening and treating the abscess which had been suggested by a surgeon in Edinburgh called Lister. A few days later we opened the abscess under the direction of Mr. Paget through a piece of lint soaked in some antiseptic, and then applied a little mass of antiseptic putty about half the size of my fist over the opening and a piece of sheet-lead upon the putty. That day and the following days the dressings frequently slipped down and were found half a foot or more below the wound. And in the course of a few days the cavity of the abscess became septic and the patient died, as many of those who were suffering from similar conditions did in those days.

I need not describe in detail the discovery of the causes of sepsis or the invention of the earlier antiseptic methods; the failures and successes, the opponents and partisans, and the long series of years before the principles of antiseptic surgery were generally accepted. All these things have been described again and again and are common property. I have to do with the effect of the general acceptance of Lister's discoveries on the application of pathology to surgery. The relation of micro-organisms to sepsis naturally led to the suspicion that micro-organisms might be connected with diseases other than sepsis, and this suspicion was quite justified, for it was soon amply proved by Pasteur for some of the diseases of animals. From the investigations which were undertaken in connexion with this subject the vast branch of bacteriology grew up, and as parents sometimes derive new lustre from the achievements of their offspring so did the parent science of pathology become

[1] Address on the Jubilee of the Pathological Society of London, Oct. 20th, 1896, Transactions of the Pathological Society, vol. xlviii.

the object of greater consideration and of renewed study. At the present moment the value of pathology to surgery is no longer in question. The applications of pathology which have been made during the last 15 years have been so numerous and so important that from an absolute disbelief in the practical value of pathology we are veering round to an implicit trust in pathological foundation. As soon as the cause and nature of a disease have been discovered an appropriate treatment is looked for as a natural and immediate consequence, and if it is not forthcoming disappointment is experienced both within and outside the ranks of our profession. As such disappointments may occur with some frequency during the next few years and confidence in the use of pathology may thus be weakened—which would be very undesirable—it may be well to review for a moment the means which are now at our disposal for the application of pathology to surgery, whether those means can be improved, and how the improvement should be made.

In the first instance, there are now research laboratories in different parts of the kingdom and a good deal of money is annually expended on research. Some of this money is found by universities and colleges, some of it by scientific bodies, societies, and associations. In my former capacity of treasurer of the British Medical Association it was a great pleasure to me to see so much money devoted every year to research, but I am bound to admit that it was not always voted with alacrity. The objects of the various researches often appeared to the members of the Association to have no practical bearing, and it was suggested from time to time that the funds had better have been applied to medical defence and other material purposes. Of course, it is always difficult to appreciate the value of researches in pure science which appear at the moment to be of no more use, or likely to be of greater use, than the researches of the professors of Gulliver's University of Lagado. And I sometimes wondered myself whether the objects of research might not have been selected with a more direct view to their utility. I was, however, easily consoled by the recollection of the marvellous application of Faraday's discoveries of the relation of magnetism to electricity.[2] No discoveries could have appeared at the time and for many years after they were made less likely to have a great practical bearing. They seemed to belong to the realms of the purest science. Who would have dreamed that at this moment they would be applied to telegraphy, to lighting, to the movement of vehicles, and largely to the use of electricity in medicine? In the face of this brilliant example we have no right to assume that discoveries in pathology which appear futile or of purely speculative interest may not at some future time acquire an extraordinary practical importance.

This factor of *time* is in itself of large importance. It would not be easy to determine with precision the length of time which has elapsed between the invention of certain operations and their habitual performance. In the past this length of time must have been inordinately drawn out, even to centuries. Take once more the example of the operation for the relief of strangulated hernia. Invented in the second half of the sixteenth century, it had become a recognised operation in France in the eighteenth century, and Petit had invented and regularly practised the operation without opening the sac in suitable cases. But it appears to have been much longer in gaining a firm foothold in this country. Pott, writing some time after Petit, is well acquainted with the anatomy of hernia and with the fact that the peritoneum is not ruptured in the descent of the hernia; he is as well versed in the pathology of strangulation as Petit, and both surgeons describe it clearly and quite differently from the great surgeons 200 years before. Pott describes the operation for the relief of strangulation[3] and how the intestine and omentum should be dealt with according to their condition; but he would not resort to the operation until such means as bleeding, clysters, purgatives, and manipulation had been tried and failed. About the same time as Pott wrote Hey began to practise in Leeds,[4] where the operation for strangulated hernia had never been performed. By 1814 Hey appears to have operated on five patients and two of them had survived. To us the percentage of cures may seem very small, but in truth it was 40 per cent., and for a condition which unrelieved leads to death in almost 100 per cent. of the cases. Think what an equal success for all cases of irreducible strangulated hernia during centuries would have meant and how the principle of early resort to operation would have vastly improved the percentage of cures and have perhaps wiped out the name of *miserere mei*.

In these days the news of successful treatment travels fast—so fast, indeed, that a new method is sometimes accepted and adopted before it has been proved by the inventor. Such is the progressive spirit of the age and so abundant and so excellent are the media of communication. Of course, these are great advantages, but there is still no trace of any distinct organisation for the application of pathology to surgery. Indeed, in some respects things are likely to be worse than they were some 20 years ago. As pathology becomes more specialised the surgeon and the pathologist must necessarily be more widely separated; and although the surgeon may make great use of the pathologist in his wards they are no longer one and the same person. Problems in pathology and in the relation of pathology to surgery will arise in the minds of men who have not the time or the knowledge to work them out and who know not how or by what means to get them worked out. On the other hand, those who work at research may know nothing of the questions which occupy the minds of surgeons. On this account many problems quite worth the working may be wholly neglected or their study long deferred. If we are to remedy these defects it can only be by some more perfect organisation, such as may perhaps be supplied by my science of applied pathology. Great attention has been devoted to pure pathology and pains have been taken to educate and train discoverers. Laboratories for research are provided for them; materials and instruments are furnished; directors of distinguished ability and of approved skill in research are appointed. In consequence the work of discovery proceeds amain. The more original and the abler workers choose their own subjects of research and make their discoveries in their own way and in their own time; those who are not so original and able are assisted in their researches by the directors.

But while our schools for discoverers are good and are improving we have no school for inventors, for the men who are to make the applications of pathology in the future. It is on that account I venture to urge the importance of the science of applied pathology which may prove a fitting school for inventors as the science of pure pathology is for discoverers. I confess when it dawned upon me that my proposition would lead to a deliberate proposal to breed inventors I was at first appalled at the daring of the suggestion. Discoverers can, I know, be made, not all equally good or equally able, and great discoverers are rare and priceless. But still, discoverers can be made, and we only discuss the proper means of making them and of making them well and quickly. But what of the inventor? Is it possible to make him too? Is he not, as he was formerly thought to be, heaven-born, a direct offshoot of divine intelligence, though often poorly equipped for the struggle of life and too often destined to fall a prey to the greedy maw of the seeker after wealth? Will mere training and education suffice to produce a mind which is not of earthly origin? In order to solve this question I thought it well to make some inquiry into the lives of inventors, and as our profession can boast but few I was thrown back on the lives of general inventors, with the following result. In the first place, there can be no doubt that many men never would have invented had it not been for a chance (not always a happy chance so far as the inventor was concerned) and therefore might never have been known to the world as inventors. The overturning of a spinning-wheel suggested to James Hargreaves the idea of the spinning-jenny. The idea seems to have entered his mind like an inspiration, just as Paré said that his brain had received the inspiration of the use of ligatures to bleeding vessels. The attention of Cartwright, the country clergyman, was directed to the invention of the power-loom by an after-dinner conversation, and, without any knowledge of weaving and without ever having seen a loom at work and without any correct notion of the principle or mode of its construction, he is said to have evolved out of purely mental processes the idea of the power-loom. There must be many such men as Hargreaves and Cartwright of natural inventive genius which has never been roused into action by accident or education and who live their lives through to the end without even themselves being conscious of their talent. In medicine and surgery there are

[2] Faraday as a Discoverer, by John Tyndall, London, 1870

[3] The Chirurgical Works of Percivall Pott. A new edition. London, 1779.

[4] Hey began to practise in Leeds in 1759.

also undoubtedly such men and if we are to use them we must discover and develop them.

In the second place, when once the inventor has been awakened to the knowledge of his talent for inventing he seems not only to like to employ it, but to be possessed by a resistless impulse to invent. This has been shown in the lives of many inventors. And in the curious account I have of Cartwright the book[3] says: "It would seem that the faculty of invention once aroused, its appetite for exercise is constant and insatiable. ..... An inventor he was, and an inventor he must continue till his eye was glazed and his brain numbed in death. ..... Wool-combing machines, bread and biscuit-baking machines, rope-making machines, ploughs and wheel carriages, fire preventatives, were in turn invented or improved by him."

In the third place, your inventor may invent better and with greater success if his mind has been trained in scientific pursuits. I think one of the best illustrations of this is to be found in the history of the invention of the miners' lamp. By a curious chance the safety lamp was invented during the year 1815 by two men, working apart, neither of them knowing that the other was engaged on the invention, and each working out his invention from a wholly different point of view. Both Humphry Davy and George Stephenson were highly endowed by nature. Both possessed the inventive faculty—Stephenson in a very high degree. But while Stephenson was what may be termed a natural mechanical and inventive genius, his education had, owing to his circumstances, been wholly neglected and he had only such knowledge as he had been able to gather together in a long struggle against adversity. Humphry Davy, on the other hand, was a highly educated man of science, but his inventive ability was decidedly lower than that of Stephenson. The safety lamps produced by these two men resembled each other in many respects, and a comparison of them in our Museum of Inventions at South Kensington shows how little difference there is between them. Yet one of them was invented on chemical and the other on mechanical principles. Davy,[4] at the request of certain gentlemen, undertook to try to invent a lamp for the safety of the men employed in the coal-pits. He commenced his labour by an exhaustive study of the chemical properties of fire-damp (light carburetted hydrogen), the circumstances under which it exploded, and the proportions of air mixed with it which rendered it peculiarly dangerous. By a series of admirably devised experiments, he discovered that the surfaces of small tubes prevented the explosion of the fire-damp and that this depended on the cooling power of the tubes, and he finally found that the greatest hindrance to the inflammation of the gas was afforded by a large number of small tubes or apertures, such as is represented by the numerous tiny openings through a fine wire gauze. Such a covering rendered unnecessary the use of glass or any other fusible or brittle substance, in itself no small recommendation. Stephenson tells his own story[5] of the manner in which he came to his invention. He says he knew nothing of chemistry at the time he was engaged in setting up some machinery in a coalpit. In the intervals of work he amused himself with lighting one of the "blowers" in the pit. Holding his candle to the windward of the flame he observed that it changed its colour. Two candles, drawing the flame towards them at a greater velocity, changed its colour still more and caused it to grow duller, and when a number of candles were employed the "blower" ceased to burn. Stephenson rightly attributed this effect to the velocity of the current caused by the heat of the candles to the windward of the "blower,"[6] and came to the conclusion that if he could produce a current through tubes in a lamp equal in velocity to the current he saw passing along the roof of the pit-gallery he would be able to make a lamp which might be carried into an explosive mixture without exploding externally. Repeated observation and experiment finally taught him that numerous tiny apertures afforded better protection than a small number of long and deep tubes, and his third lamp was made by surrounding the flame with a metal plate, perforated by a vast number of tiny holes, so that it differed little from a wire gauze of the same material. Stephenson was so confident of the efficiency of his lamp that he tested it, at the risk of his own life, by entering a coal-pit which had been first rendered as foul as possible by preventing the escape of the fire-damp. Davy's lamp was much more generally used than Stephenson's, but Stephenson's lamp was used for very many years in the Killingworth Pit where he had been colliery-engineer-wright at the time of its invention.

At the first sight it might seem that Stephenson's successful invention is but another proof that your inventor is born, not made; for here is a man without scientific knowledge, and without even ordinary education, who invents a lamp almost precisely similar to, and as good against explosions as, that of the philosopher and scientist, Sir Humphry Davy. But, in truth, Davy's proved to be the better lamp. Not only was it lighter and more portable than Stephenson's, but it possessed the great advantage that it was not extinguished in thick fire-damp. Further, the experiments and observations of Davy in the course of his research served to render the world richer in the accurate knowledge which it afforded of the nature and chemical properties of fire-damp. If Davy's invention had proved a failure his work as a discoverer of the nature and properties of fire-damp would have far more than repaid the time and labour expended on the attempt to invent.

Again, Davy's invention proves that it is possible to invent "to order," for he deliberately set himself to invent the lamp at the request of a committee of gentlemen interested in the coal-mines. I do not know whether we shall ever attain to that with our inventors of surgical methods. Yet a similar instance of a successful investigation and of the invention of a method of treatment, or rather of prevention, at the request of persons interested, may be found in the history of the discovery and prevention of silkworm disease by Pasteur.

Here, then, are found four important indications for the making and perfecting of inventors: that there are certainly many more inventors in the world than the world suspects, but their peculiar talent must be discovered; that when it is discovered they can scarcely help inventing; that scientific training, so far from impairing their inventive powers, will almost certainly improve them; and that men with the proper talent and opportunity may invent "to order." Further, it may be assumed that no man would be likely to make a specific invention unless he were acquainted with the need for such an invention. From these indications it would seem that if we are to make surgical inventors we must look for inventive minds among our students and young qualified men; that these men must be well versed in surgical methods at present in use; that they must be thoroughly educated in science and in the methods of science, especially in experimental methods. They must also be well instructed in pathology and acquainted with new discoveries in pathology which may be of use in surgery, and they must either have the opportunity of testing their inventions or of observing and directing the trial of them. They must therefore have free access to the hospital wards and be in frequent or constant communication with them; they must have laboratory accommodation and must be in touch with those men who are engaged in pathological research.

If these conditions are to be fulfilled in such a town as London we shall require two species of pathological laboratory for research. The one, for research in pure pathology without any reference to its application, may be of vast size and thoroughly equipped for workers, and need not be attached, so far as its site is concerned, to any hospital. The other, for research in applied pathology, the laboratory for inventors, must needs be attached to the hospital; and those who work in it should have the freest access to the wards, even if they are not in charge of special wards, and should have every opportunity of observing what is done there and in the operating-rooms. In order that they may be thoroughly instructed in the science of pathology they should be taken from among the workers in the laboratory of pure pathology and should be selected on account of their special aptitude for the work of research and for the originality which they have exhibited. They leave the school of discoverers and the science of pure pathology for the school of inventors and the science of applied pathology. At the time when the idea of a school of applied pathology first presented itself to my mind the sketch I have made would have appeared to be the dream of an enthusiast. But now so far from being a dream

[3] Triumphs of Invention and Discovery in Art and Science, London, 1881.
[4] The Collected Works of Sir Humphry Davy, Bart., LL.D., F.R.S., vol. vi., London, 1840.
[5] Evidence before the Committee of the House of Commons in 1833. Smiles's Life of George Stephenson, fourth edition, 1857.
[6] The rushing of the fire-damp from fissures in the strata of coal is called a "blower."

it is in some respects actually approaching realisation. There are in this town at the present moment laboratories where researches in pathology are constantly carried out, and some of these laboratories are quite separate from, and independent of, the hospitals. There is an institution of preventive medicine where pure and applied pathology are studied, but this is also separate from the hospitals. During the last few years several of the hospitals have founded professorships of pathology and have appointed to them men who devote to the science of pathology, not merely the time they can spare from some other pursuit, but their whole time. These men are constantly in touch with the work of the wards and furnish the greatest assistance to it by bacteriological and histological examinations. Speaking of my own hospital, the assistance rendered to the work of the wards by Dr. Andrewes and his predecessor Dr. Kanthack has been of inestimable value. Indeed, it is difficult to understand how we could have performed our work efficiently before the institution of the pathological laboratory.

[Mr. Butlin concluded by saying that although much had been done much remained to be done. He compared, somewhat to the disfavour of the latter, the sums of money spent in Germany on chemical research connected with the colour industry and that spent upon the same object in England. A similar kind of thing is, he said, wanted for the furtherance of medicine and surgery—in fine, a "direct and organised scheme for research and the application of pathology to our art."]

The Ingleby Lectures

ON

THE COMMONER NEUROSES OF CHILDHOOD, THEIR PATHOLOGY AND TREATMENT.

Delivered at the Mason University College, Birmingham,

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LECTURE I.[1]

Delivered on June 27th.

MR. DEAN AND GENTLEMEN,—I desire to draw your attention to a large class of sufferers whose ailments inflict much distress on themselves and much anxiety on their friends and parents. The diseases with which I propose to deal are the so-called functional nervous disorders or neuroses of children, as distinguished from those diseases of the nervous system in which distinct and easily recognised changes can be found post mortem to account for the symptoms during life. I have thought it more interesting to treat in these lectures of a group of maladies of common occurrence, one or other of which must almost daily come under the observation of each of us, than to deal with rare and exceptional ailments, and I have been confirmed in my choice by the conviction that much is still to be learnt regarding the nature and causation of these neuroses, and much in regard to their correct and complete diagnosis, and that something still remains to be done in the way of treating them successfully, to which end a true appreciation of their nature is the first essential step.

The disorders with which I propose to deal are the following: (1) chorea; (2) saltatory or salaam spasm; (3) tetany; (4) night terrors and dreaming; (5) nocturnal enuresis; (6) migraine and allied conditions; and (7) epilepsy. Dissimilar though these diseases may at first sight appear yet they have several points in common. Thus they occur with greatest frequency in childhood, some, as chorea and nocturnal enuresis, being almost limited to that period of life as regards their onset. Further, they are more frequent in the female sex, and where this appears not to hold true entirely, as in migraine and epilepsy, it is nevertheless the fact that females are more disposed to be the sufferers during the time of adolescence. Lastly, I think that I shall be able to show that they have still more points in common, particularly in the matter of causation.

1. *Chorea.*—This is so common a disorder that I will not waste your time with a description of its characters But I would like to draw attention to the different kinds of chorea which we encounter in practice. The following list comprises all the forms commonly connoted under the term chorea: (1) senile chorea; (2) hereditary chorea of middle adult life; (3) post-hemiplegic chorea; (4) chorea of pregnancy; (5) fright chorea; (6) hysterical and imitation chorea; (7) electrical chorea of Dubini; and (8) rheumatic chorea and those choreas arising from scarlet fever, malaria, and possibly from other infective conditions. With the exception of post-hemiplegic and senile chorea all these are genuine functional nervous disorders. It is of course true that minute changes have been discovered in the brain in cases which have ended fatally. These microscopic changes, however, are not sufficient to remove the disease from the list of neuroses, nor have they as yet been made out with sufficient constancy to warrant the inference that they are the actual direct cause of the choreic movements. It will be noticed in looking at this list that, putting out of consideration for the moment the first three, we have to deal with two broad classes of chorea. The first of these is psychical in its causation, at least as far as the exciting cause is concerned; the second class is clearly of quite different origin—namely, toxic. In the latter No. 7 and No. 8 are comprised; in the former No. 5 and No. 6; and No. 4 may belong to either the psychical or the toxæmic class.

A good deal of doubt has been expressed by different observers upon the alleged production of chorea by fright, chiefly on the ground that fright is very often asserted to have set up the disease in a child when closer investigation shows the cause of the fright to have been very slight. It must, however, be borne in mind that what may seem to a healthy adult to be a small or negligible cause for shock or fear may to the child have been a very great cause; or, to express it otherwise, what does not suffice to frighten an adult may produce very real terror in a child. There are, I imagine, few medical men of any experience who would not admit that fright is capable of producing genuine chorea, in the same way as we all know that it may, in certain conditions, set up paralysis agitans, dementia, genuine epilepsy, profound shock, and even death. However we may try to explain the manner in which fright acts, we are constrained to allow that it may result in these severe nervous disturbances, and more, that it may lead to disease which has a distinct anatomical lesion. Thus, for instance, Dr. Allbutt has described a case of chlorosis in which the anæmic condition was set up by great terror. Certainly the patient had on a previous occasion suffered from the same complaint, so that we must admit in this particular instance the presence of a strong predisposition. Now the question naturally arises whether fright or any other strong mental impression can create chorea in a child without there being any predisposition produced either by an hereditary, weak, and unresisting nervous system, or by a toxæmic condition which, though not obtrusive up to the time, has been quietly damaging the nervous centres for a period preceding the exciting cause. The evidence on this point is not sufficiently conclusive to warrant a categorical answer to the question, but I think that every now and again we meet with clear evidence that sharp mental impressions may set up chorea in children in whom nothing has before existed to make us suspect a disordered or hereditarily weak nervous system. In the majority of fright choreas, however, the evidence is very strong that an inherited or acquired predisposition is present. Apart from the agency of mental shock we have, however, the agency of toxæmia, and this cause furnishes a greater number of instances of chorea than does mental disturbance. A majority of the cases of chorea which are met with in this country show a history of some rheumatic affection, either pronounced, sharp, and severe, or insidious and lingering, and at other times so slightly pronounced as to answer to the name of "growing pains." A small number of the sufferers give strong evidence that scarlet fever was the source of the blood intoxication. In a certain proportion of the cases we can trace neither of these maladies nor any

[1] Lecture II. will be delivered on July 4th, 1900.

other infective disease, and the cause of the toxæmia remains undiscovered.

I would now like to bring to your notice a fact which has often arrested my attention in the out-patient room, when watching children suffering from chorea. This is the evidence of disordered digestion which we may observe in a considerable proportion of these patients. That sufferers from this disease are usually small, ill-clad, and ill-fed is generally admitted. Over and above this we may, however, see that they often have furred tongues and, what is very unusual in healthy children, distinct vascular stigmata on the cheeks. Inquiry will in the cases presenting these two signs nearly always elicit a story of indigestion and often of constipation. A considerable number of choreas have come under my notice presenting these appearances and giving a history of digestive disturbances. These facts naturally suggest the question whether disorder of digestion may not stand in some causal relation with chorea, and impossible as it is to prove such a causal nexus, there are nevertheless some points which, I believe, support the suggestion. Thus many of these patients showed in a marked degree the presence of indican in the urine, proving that a good deal of putrefactive material was absorbed from the bowel and passed through the liver into the general blood-stream, to be finally removed by the kidneys, but only after it had circulated through the tissues. It is true that in some cases presenting the same signs of indigestion no indicanuria can be found, but this is not surprising when we remember that profound digestive disturbances may exist without indican being discoverable in the urine. The positive evidence afforded by this body is valuable as an index of absorption; the negative evidence furnished by its absence proves nothing. I shall return later, in dealing with the general pathological aspect of these disorders, to the questions of indican and of absorption by the intestine of anomalous by-products of digestion; meanwhile there certainly is no improbability that chorea should be caused by a toxæmia due to putrefactive changes in the alimentary canal. The modern and most widely accepted explanation of the chorea which follows on acute rheumatism is that the phenomena of the disease are due to a toxic body contained in the blood and that this harmful material is a product of bacterial life. Now the putrefactive processes which occur in the intestine are likewise the work of bacteria, and there is every *à priori* reason to believe that the metabolic products of these microbes will act harmfully on the nerve centres if they be brought into intimate contact with them by the circulating blood.

Another consideration which has some interest is suggested by this—namely, the possible connexion between rheumatic fever and self-infection from the gastro-intestinal tract. It is true that we can generally trace the occurrence of a sore-throat at the commencement of an attack of rheumatic fever, but not always. When we can trace the inflammation of the tonsils or faucial regions we assume that the germs or their toxic products have gained access to the blood by way of these inflamed areas. But, as I have just remarked, this channel of infection not infrequently fails us. May it not be that in some instances rheumatic fever is set up by bacteria from the intestine effecting an entrance into the blood? The suggestion has a good deal of likelihood on its side, especially when we consider that there are several different clinical types of rheumatic fever and that in the endocarditic and articular lesions of this disease several distinct kinds of bacteria have been discovered. However this may be, I have seen so much clinically of chorea combined with evidences of digestive disorder, as to make me believe that it is, in a considerable proportion of the total cases, set up by auto-intoxication from the intestine, and therefore further investigation in this direction seems to me to be desirable; and I feel convinced that any observer who will watch cases of chorea, bearing this point in mind, will soon be struck by the frequency with which confirmatory evidence will meet him. Accordingly I would wish to insert in the list of cases of chorea another heading—namely, "gastro-intestinal self-intoxications." I am not able to give statistics from any considerable number of choreas to show what proportion of them may with probability be assigned to gastro-intestinal self-intoxication. Some years ago, however, before my attention was directed to the importance of this cause, I found that out of 24 successive cases of chorea six gave a clear and undeniable history of the first attack being set up by fright or other mental shock; one was due to scarlet fever, one to typhoid fever, and one resulted from injury—namely, a sprained ankle. (This last case may perhaps be classified with the choreas produced by shock.) Eight cases showed evidence of endocarditis or rheumatic fever, or gave a history of the latter, and in seven cases no cause whatever could be elicited by inquiry or by auscultation of the heart. I now think it highly probable, in the light of more recent experience and further inquiry, that this group of patients owed their disease to toxæmia from disordered digestion.

2. *Saltatory spasm.*—Closely allied with chorea is the curious nervous disorder which has been termed "saltatory spasm," or "jumping spasm," or "salaam spasm," from the jumping or curtseying movements which characterise it. The movements vary a little in different cases, justifying now the one name and now the other. The gap between the common clinical picture of chorea and the rare one of saltatory spasm is bridged over by certain cases of so-called "hysterical chorea," as I will endeavour to show by citing an instance in point. Saltatory spasm is so rare in England that it hardly comes under the designation of a common neurosis and it is introduced here mainly on account of its relationship with chorea. The only cases which have come under my personal notice are two, one in a woman, aged 33 years, and the other in a girl, aged 14 years, and since the disorder is so scarce I may shortly describe them.

CASE 1.—A girl, aged 14 years, who had not begun to menstruate and who presented no appearance of sexual maturity, had suffered for four days from the spasms now to be described. At irregular intervals, which, however, rarely exceeded 30 seconds, there was a sudden contraction of the flexors of the hips and of the knees. The contractions were of only momentary duration and instantly relaxed, but were often repeated so frequently as three times in five seconds. After such rapidly following movements there would be an interval of quiet, lasting perhaps half a minute, and this went on all day long and only ceased during sleep when the muscles were completely at rest. The spasms were equally marked whether she stood or lay down; but their intensity varied, so that the effect on the body was not always quite the same. Generally the effect would be a bending of the trunk on the thighs like a sudden and rapid bow; but on more forcible contraction of the muscles concerned the heels would be raised off the ground and brought down again sharply with a stamp; and on occasions the feet would both leave the ground completely for an instant and a distinct jump was the result. At much longer intervals a spasm would affect the arms, the elbows being bent and the arms being folded across the chest by the action of the larger pectoral muscles. The more highly specialised limb muscles were free and so was the face. The glutei and extensors of the hips contracted, but apparently only in re-establishing the balance of the body after the disturbing effect of the flexor spasm. There were no sensory symptoms and the patient controlled the sphincters perfectly. Her mental state was curious. She answered rationally and even cleverly, spoke clearly and without any hesitation, and sang nicely with a good voice and particularly correct intonation when asked to do so. Occasionally, however, that is, several times in the day, she would suddenly and without any apparent reason—for instance, while she was being examined in the out-patient room—burst forth into song, a thing which, her mother said, had occurred only since the onset of the present illness. At intervals, too, she would break into a fit of loud laughter without rhyme or reason, but she did not have attacks of crying. She ate and slept well and had a rosy, healthy, clean complexion, and was well built and well nourished. The history of the onset of this illness is interesting and ran as follows. The girl was in good health until three weeks before her admission to the hospital. At that time she had a sudden fright and instantly screamed loudly, but then walked home and appeared to her mother to be in her usual health. On the day following the fright it was noticed that she was nervous and quiet, but her quietness was interrupted by loud fits of laughter, the reason for which could not be ascertained, and when anyone approached her she was liable to scream loudly. In this nervous and depressed condition, with the occasional outbursts just described, she continued until four days before admission, when the spasms made their first appearance. The little girl was naturally very intelligent, industrious, and quiet, and was her mother's right hand in the housework. She

had previously to her present illness always enjoyed good health. The family history showed no special neurotic tendency. In hospital, kept quiet behind a screen, she soon recovered complete health, and though I have not seen her since I have every reason to believe that she had no recurrence for at least a considerable time. A point of great interest in this spasm is the affection of the arms associated with that of the legs. It will be noticed that the form which it took was that of folding the upper limbs across the chest very much as the motion of humility, which is associated with the bowing of the trunk on the thighs in the performance of an oriental salaam. In fact, but for the rapidity and jerkiness of the contractions they completely justified the appellation of "salaam spasm." Again, it is interesting to note the complete escape of the more highly specialised limb muscles as well as of the facial muscles; in fact, the muscular groups affected were those most elementary in development and least specialised in action. It would be easy to call the condition which I have described one of "hysterical spasm" in view of its mode of origin, and I have no doubt that by some it would be so named. But, on the other hand, we know that typical choreas are often set up in precisely the same way and I do not feel inclined to describe this case as "hysterical spasm" any more than I would describe a chorea due to fright as "hysterical chorea."

CASE 2.—The other instance of this affection, as I have mentioned, occurred in a woman, aged 36 years, unmarried, and small, badly nourished, and wizened in appearance. In her the muscles of the lower limbs alone were spasmodically affected, the arms and face escaping completely. The effect when the patient was standing was exactly the same as I have described in the case of the little girl. When the patient lay in bed, the psoas contraction tended more to arch the lumbar part of the spine into a position of momentary opisthotonos, the thighs becoming the fixed points from which the muscles acted, and the same was noticed when she assumed the sitting position. When I saw her the spasm had lasted some months, but she could give no clear history of the onset, which appeared to have been gradual. The case came to my notice long before disturbance of the digestive functions in connexion with these disorders had aroused my interest and I am therefore unable to say whether any of the former were present. The malady proved very intractable and after two months of treatment the spasm was practically undiminished.

These two cases are typical of saltatory spasm. It is plain that the mode of causation, in the first at least, was the same as in so many cases of chorea. In fact, it seems to me merely an accident that this little girl was attacked with the peculiar spasm described and not with ordinary choreic movements, and one would not be surprised, were the saltatory form commoner, to see it produced by precisely the same causes which give rise to chorea.

CASE 3.—In order to show the close clinical connexion existing between chorea and salaam spasm I will mention a case which was recently under my care at the Queen's Hospital, Birmingham. A single woman, aged 21 years, was admitted suffering from choreic movements affecting all the four limbs, the muscles of the neck, and, to a smaller extent, those of the face. The movements had the character of sudden sharp contractions followed by momentary relaxation—in fact, they resembled nothing so much as the contractions produced by the sudden application and withdrawal of a faradaic current at frequent but slightly irregular intervals. The contractions of the neck closely resembled those of spasmodic torticollis. All these movements continued during sleep. The patient was fairly developed, well nourished, and in good condition. The complexion was good with the exception of a few venous stigmata on the cheeks. Her digestion was, according to her own statement, in good order, but her bowels during her sojourn in hospital required constant attention. There was no endocarditis and no history of rheumatism or of former chorea could be obtained. The onset of her illness was as follows. Six months before her appearance at the hospital, while she was in good health, she had been bitten by a dog. She was not much hurt but greatly frightened and she ran away. For some hours after the fright she continued to tremble, and for a few days continued in a very nervous state. Three or four days after the injury her back suddenly began to arch spasmodically and intermittently, especially when she lay in bed, and for a fortnight these spasms continued to spread so as to involve the limbs; but they were at the time of admission to hospital slightly subsiding. With the patient standing up no arching of the back could be seen, but there was distinctly every now and then a flexion of the trunk on the thighs of the same kind, but of much smaller degree than in the two cases of saltatory spasm just mentioned, and the muscles producing this movement could be both seen and felt to contract. The patient also had retention of urine during her stay in the hospital. From this symptom she had suffered once before during an attack of influenza long antecedent to the present illness. She was but little benefited by a stay of seven weeks during which everything I could devise was tried, and now she is still suffering in exactly the same manner and also has attacks of retention of urine from time to time. The urinary difficulty of this patient is well worth noting; it varied between retention, which would trouble her for days together, and true suppression. Thus, after she had been an in-patient for about three weeks the quantity of urine, which up to that time had ranged within normal limits, suddenly fell to four ounces in the day, and she suffered from severe headache. Only a few drachms of urine could be evacuated by the catheter and there was no palpable enlargement of either kidney. The condition passed off with diuresis. More often than this, however, there was mere retention of urine easily relieved by the catheter. Now this case, on the face of it, is one of hysterical chorea with hysterical anuria, and the character of the movements, their rhythm, and the history of the onset all support the diagnosis of hysteria. Moreover, the family history showed a predisposition to nervous disorder. The refractory character of this illness is likewise in keeping with what is remarked by Charcot on the intractability of certain hysterical affections. Yet the spasmodic movements continued undiminished while the patient was asleep, which proves that they were independent of any active encouragement on the part of the sufferer and that the disease was as genuine a chorea as is any chorea the onset of which is determined by mental shock. I have quoted the case at length in order to show how close is the connexion between ordinary chorea and so-called hysterical chorea, and to demonstrate the clinical and etiological relationship between chorea and saltatory spasm, which latter was very closely approached in the present instance. This patient showed no indicanuria, but the venous stigmata on the cheeks, coupled with the stubborn condition of the bowels, gave good ground for suspecting a chronic auto-intoxication, and in the absence of the same it is quite possible that the original fright might have produced nothing more than a temporary shock.

3. *Tetany.*—This disease should rather be considered as a symptom, for although we do meet with patients in whom the spasm of tetany so predominates that all other signs of illness are overshadowed by it, yet such cases are rare. On the other hand, tetany is not so rare as one symptom forming part of a clinical picture in which the other symptoms and signs are of equal prominence. It is unnecessary here to describe the character of the contractures. The trunk muscles and those of the face generally escape, and it is only in very rare cases that the muscles of respiration are affected. The disease is most often met with in children, but it occurs also in women and is, among adults, limited, so far as I have seen, to the female sex. The causes commonly assigned are the following: (1) catching cold; (2) rickets; (3) acute infectious diseases, such as typhoid fever and small-pox; (4) intestinal affections, as diarrhœa; (5) prolonged suckling and over-lactation; (6) pregnancy; and (7) Weiss has pointed out a peculiarly frequent sequence of tetany after extirpation of the thyroid gland. Sometimes tetany has been reported as occurring epidemically, but it is doubtful whether in these cases the spasm was not due to imitation.

CASE 4.—With a view to show the connexion of tetany with another class of disease only indirectly referred to in the above list of causes I would quote the case of a nurse who came under my observation some time ago. She was a strong and healthy woman, but had caught cold and become hoarse a few days before I first saw her for violent suffocative spasm with much cyanosis. After the spasm she looked quite well and her healthy colour returned, but she was completely aphonic. A subsequent laryngeal spasm which I saw was accompanied by typical tetany-contractions of the hands and of the right foot, the left remaining free. The limbs affected were blue and cold, but recovered their natural colour and temperature when the dyspnœa ceased,

The suffocation was apparently caused by an adductor spasm in the larynx exactly similar to that which is so familiar in children as laryngismus stridulus. For five or six days these attacks recurred both by day and night. During the whole of this time she had a moderate continued fever which ended gradually by lysis. The spasm in the hands, which occasionally came on in slight degree without the dyspnœic attacks, was invariably preceded by a sensation of numbness and tingling which gave her warning of its approach. After leaving her sick room this patient was weak, pale, and tottery, as though she had undergone a long and severe illness. Throughout, the lungs had presented no physical signs of disease. Here, then, was a typical case of tetany associated with laryngitis from cold and adductor spasm of the larynx, a symptom-complex which brings this instance of the disease very near indeed to those tetanies which occur in rickety children in whom both laryngismus stridulus and catarrhal laryngitis with stridulous spasm are exceedingly common.

CASE 5.—Another case of this malady which was recently under my care is also worth noticing. An infant, aged one year, was admitted for well-marked, though not very severe, tetany. He was well nourished but showed distinct marks of rickets. In three days, the spasms having subsided, he was sent home. Ten days later he was re-admitted for a recurrence of tetany. The stools were now loose and contained some orange-peel and other undigested food; they were greenish, mixed with mucus, and very offensive. The tetany now persisted for 11 days, being nearly always present in some degree, but generally appearing to cause no pain; the exacerbations, however, were painful. On the eighth day he developed a laryngeal cough but had no laryngismus. Throughout there was an absence of fever and gradually the child regained his normal health. In this case we have a combination of the symptom of tetany with several of its recognised causes—namely, gastro-intestinal disturbances, clearly provoked by unsuitable and indigestible food, as shown by the stools, rickets, and most likely considerable laryngeal inflammation. I have never seen tetany occurring even in a rickety child without distinct catarrh of either the respiratory or the digestive mucosa, and it seems to me that not the rickety nutritional trouble but these catarrhs are the cause of the spasm, by inducing a toxæmia or a reflex irritation. We have seen that such inflammations can lead to tetany in the absence of rickets, and the truth is probably that both the latter disease and the tetany are common results of the catarrhal conditions. It appears more usual for such results to follow disease of the intestinal than of the respiratory mucous membrane.

Tetany is one of the diseases in which Albu has succeeded in isolating from the urine a toxic substance. In the light of other researches this result is not so important as might at first sight appear; I shall return to this subject when reviewing the general pathology of these neuroses. Meanwhile we find in the occurrence of tetany in conjunction with extirpation of the thyroid and with laryngeal inflammation a suggestion that reflex irritation may have a share in leading to the spasmodic symptom. So also it might be thought that in the case of the little patient last quoted the spasms were set up reflexly by irritation of the intestinal nerves, and apart from any absorption of toxic material from the lumen of the intestine. It must be admitted that it is very difficult to distinguish between nervous symptoms set up by a toxæmia and those caused by the peripheral irritation of correlated nerve fibres. There appears to me to be only one point which may help one at the bedside to determine whether the nervous symptoms in any particular case are toxæmic or reflex. It is this: when we produce a reflex act by mildly stimulating the skin, as, for instance, in eliciting the plantar or cremasteric or epigastric reflexes, the first response is always in muscles which lie near to the stimulated cutaneous area. Thus in the case of the plantar reflex, in health, flexion of the toes is the first muscular action, and only as the stimulus is increasing do other muscles respond. On the other hand, when a toxæmic state is the cause of the muscular symptoms the poisonous material will be equally distributed in the blood-stream, and it will act with greatest effect on that part of the nervous system which is most susceptible to the toxic influence, or, what is probably the same thing, that part, for the structural elements of which the poison has the strongest affinity. Hence the seat of the muscular contraction will in this case be determined by the tenderest part of the central nervous system and we may, as I shall have occasion to show later, have such a phenomenon as unilateral epileptic convulsions arising from gastro-intestinal self-intoxication. From the phenomenon of tetany, as well as from the evidence that the disease is always preceded by conditions liable to produce toxic or infective states of the blood, we should be inclined to say that the spasms are produced by toxic rather than by reflex mechanism. A co-existence of the two agencies is not, however, entirely excluded.

4. *Night-terror.*—The next disorder which I wish to discuss is night-terror—nightmare and troubling dreams generally. Children are comparatively rarely brought for advice for these symptoms alone, but their frequency is very great in conjunction with other conditions—notably with disturbances of digestion. Probably the dreams are a good deal more troublesome to the little sufferer than the child can express, for it is only when the fifth or sixth year has been reached that a child will complain of its dreams. In younger infants the evidence of suffering must be derived from screaming, or, in lesser degrees, from restlessness, muttering, and broken sleep. One may say that dreams and nightmare arise from the following causes: (1) primary mental or emotional excitement which prevents the occurrence of that necessary anæmia of the brain in which alone sound sleep is possible; (2) pain, palpitation, visceral uneasiness, &c., producing a consciousness of the physical sensation and thus preventing sound sleep; and (3) blood-states which irritate the nervous centres. In the first class of cases the patient, generally an adolescent or adult, will recognise what is troubling him. It rarely happens that the sensation is one of mere restlessness without a definable cause for the same. The second group of causes requires no comment; it is, of course, equally liable to operate in children and in adults. The third group of causes prevents sleep by producing a sense of restlessness without pain, and an excited state of the consciousness, in which deep sleep is impossible, and in which confused thought goes on, and any impression made on the half-slumbering senses will render the sufferer partly conscious of the same. Most of us engaged in the practice of medicine are familiar with the phenomenon which may be called "red dreaming." In this condition the sufferer sees the object of his dream coloured a vivid red and bloodshed forms a common subject of these sleep-hallucinations. It is not infrequently a salient complaint in the tangled complex of symptoms which a so-called "hysterical" woman lays before us. All the instances of this kind with which I have become acquainted have occurred in people whose digestive processes were out of order. It is safe to say that a large number of dreams, more particularly those of an acutely distressing or alarming character, and especially the dreams of children, are due to a toxæmic state; and it is to be noted that, apart from the delirium of fever, these dreams occur frequently in children who are to all appearances fairly healthy or who are, at all events, not suffering from pronounced disease and who can usually follow the daily round of school-life. If we inquire what kind of digestive disturbances are the most fertile in producing dreams we shall often find that a faulty diet is to blame. Referring, again, for an example to the red dreams just mentioned my own experience shows them to be frequently due to a single excess of meat accompanied perhaps by a simultaneous overloading of the stomach. It may be, therefore, that such dreaming is caused by reflex irritation of the brain-centres or of the nervous apparatus which governs the supply of blood to these centres. On the other hand, it is also possible that the importation of an excessive amount of the digestive products of a meat meal acts as an irritant to the brain-cells directly and without the mediation of the vaso-motor mechanism. However we may choose to explain the connexion we must admit it from clinical observation, for it is proved not only by the frequency of the joint occurrence but also by the effect of treatment which removes the gastro-intestinal cause. It is true that success does not always follow immediately upon correction of the dietary error, and two reasons are accountable for this failure. The first is that, though unsuitable feeding is often the primary cause and is easily put right, yet the faulty diet may have produced a state of intestinal catarrh and this may in itself be sufficient to perpetuate the nervous symptoms, and will therefore require appropriate treatment. The second reason is that frequent recurrence of the nervous effect may establish a morbid habit in the nerve-cells which is in itself a difficulty even after the primary cause of the disturbance has been successfully removed.

Although, as I have insisted, improper feeding is the most frequent primary cause of children's disturbed sleep and dreaming, yet the same symptom is met with in patients in whom the diet is everything that could be wished. In such cases we shall usually find the presence of gastro-intestinal catarrh, shown by a coated tongue or painful digestion, and it is often the remnant of an attack of measles, whooping-cough, or other infectious disease the acme of which is passed. In other cases the dreaming is the only marked symptom of an unrecognised febrile process, either tailing off from some previous disease, or arising insidiously without marked symptoms, or, though much more rarely, representing the gradual onset of a general disease such as acute rheumatism of the creeping insidious type. It is therefore advisable to take the temperature, at all events in the evening, in patients in whom dietary or digestive faults fail to account for the disturbed sleep. In adults dreaming is frequently set up by a toxæmic condition which arises, not from self-intoxication from the intestine, but from the inefficiency of the kidneys, the result either of actual disease or of the state of renal inadequacy described by Sir Andrew Clark; and in children the same condition will at times be found both in cases where albuminuria and the presence of renal débris reveal structural disease of the kidneys, and in others where these glands are merely enfeebled by the demands to which a previous infective condition has subjected them.

The number of instances in which I have found distressing dreams combined with the signs of digestive toxæmia, to which reference has been made under chorea, is considerable. Yet in laying stress on what I believe to be the most frequent and important cause of nightmare—viz., gastro-intestinal disorder—I would not underrate the importance of primary emotional excitement and of pain, and of unrevealed fever in producing the same effect. In order to treat a child successfully for this distressing condition it will be found necessary to discover fully the cause of the disturbance and to deal with this in the first instance. Further details on the treatment will be included in the review of the therapeutic measures which are applicable to these neuroses generally.

5. *Nocturnal enuresis.*—This condition is, I suppose, still regarded by some as an independent disease and is treated as such. I wish to show in these remarks that that is not really the view which should be taken of this common and annoying symptom. Mothers and fathers are accustomed to regard enuresis as a bad habit—and such undoubtedly it may become—but it is never a habit contracted from either mere wilfulness, or from imitation, or for the sake of producing a pleasurable sensation, and the only habit which can be considered as applying to enuresis is one of easy excitability of the cord-centres which control the muscles of the bladder. Punishment is clearly out of place in the treatment of a habit of this kind. For the first factor of nocturnal enuresis we must, however, look elsewhere, and I think that the primary causes may be fairly stated as follows: (1) disease of the bladder or urinary passages, as, for instance, stone; (2) irritation of the rectum, as from worms; (3) excessive secretion of urine; (4) excessive irritability of the spinal centres concerned in micturition; or (5) excessively irritating quality of the urine. Although it is convenient to separate the fourth and fifth causes, and although, in fact, each of them may be singly operative in causing nocturnal enuresis, yet these two factors will, as a rule, be found acting conjointly. Excessive irritability of the spinal centres there always must be, to lead to the untimely discharge of urine during sleep, but this probably never occurs (except in gross disease of the spinal cord with which we are not here concerned) without a condition of urine which must be considered as abnormal. If we exclude those cases in which there is an excessive formation of urine and those in which there is actual organic disease of the urinary passages, we shall find that the urine of children suffering from enuresis is generally sharply acid, often, in addition, rich in urates, more rarely depositing uric acid; sometimes an excess of oxalate of lime will be found. Such urines are scanty and concentrated rather than copious, and they indicate an error of the metabolic processes which may depend upon disease or diathesis, or upon faulty diet. In conformity with these points we generally observe that enuresis first comes on either after an illness or after a change of diet, or when, in the absence of definite illness, the child has been in depressed health. The state of the urine is, in fact, the index of a disordered metabolism. How the disorder comes about is shown to us by the fore-runners of the enuresis, though it must be admitted that the history is often difficult to obtain. We may safely assert that the disturbance of the assimilative and disassimilative processes is never primary, but that it is invariably the result of an altered state of the blood, which in turn has its cause in the presence of toxic substances, the proceeds of microbial action or the derivatives of a faulty diet. In a few instances nocturnal enuresis results from the direct excretion of pathogenic bacteria by way of the urine. Charged with considerable quantities of living bacteria and their derivatives, the urine naturally has an action upon the walls of the bladder irritating beyond the normal, and the result is that during the time when voluntary control is smallest the spinal centres are apt to respond vigorously to the extraordinary irritation. I have lately seen a case in which this occurred.

CASE 6.—After a prolonged pneumonia the urine of a little boy contained large quantities of bacteria, and simultaneously he had great frequency of micturition with loss of control over the bladder. This led to an enuresis which was certainly not limited to the night, but which continued night and day; but it was merely an exaggeration of nocturnal enuresis.

The same tendency to frequent micturition may be discerned in a minor degree in a good many adults after the termination of pneumonia or other bacterial disease such as enteric fever. There can, however, be no doubt that the majority of instances of nocturnal enuresis are associated with no very noticeable disturbance of the general health and hence the enuresis is made the chief complaint, and, I repeat, where no recent illness can be traced there we shall nearly always find error of diet or disease of the digestive tract. Unsuitable diet plays so important a rôle that to illustrate it I will mention a case which has recently come before me.

CASE 7.—A little girl, aged three years, suffered from nocturnal enuresis together with frequent micturition during the day. The urine was said to be not excessive in quantity, it had a high colour and density and a strong smell, somewhat resembling that of meat extract. There was a little inflammation about the external genitals. The child's sleep was broken, she was nervous, and she had a trick of pulling faces, the movements coming sometimes near to those of chorea. Beyond this her appearance was that of health. She suffered, however, from itching and showed isolated spots of urticarial erythema. All these symptoms had come on from the time when she was first given meat; up to nearly her third year she had never tasted this article of food and had enjoyed excellent health. Withdrawal of meat from her dietary was immediately followed by moderation, though not by complete cessation, of the symptoms; but a fortnight after the beginning of this treatment a single meat-meal, which by the way consisted of rabbit, was followed by enuresis in the same night.

DIFFERENTIATION IN DIABETES.

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(*Continued from p. 1789.*)

IN the "*alimentary*" form of diabetes we have only the ill effects of the sugar in the system to deal with. There is not the liability to the supervention of the fatal coma that there is in the other form where toxic products are developed from the process of tissue breaking-down going on. In proportion to the amount of sugar in the system, which is indicated by the quantity appearing in the urine, so do we find the intensity of the symptoms. With only a little sugar reaching the system and passing into the urine there is but little deviation from the natural state, and nothing wrong as regards the state of health may be perceptible. When the circumstances are such, however, that more sugar finds its way into the circulation the deviatio from the natural state becomes, proportionately to the quantity, increased and there is a corresponding manifestation of disordered health. That it is the passage of sugar

through the system that is the source of the troubles met with in connexion with the disease is shown by the immediate amelioration that takes place on causing the passage of sugar to cease simply by recourse to an appropriate diet. Let a case be taken in which from some circumstance or other the complaint has been allowed to run on uncontrolled till an urgent state has been produced. The patient is now placed upon a diet preventing, by the exclusion of carbohydrate matter, sugar reaching the system as before. A change of a most marked kind immediately sets in. All the symptoms subside and the health becomes restored and may afterwards be indefinitely maintained so long as the condition does not advance beyond the "*alimentary*" form. Thus in these cases as long as there is only the "*alimentary*" type of condition to deal with the state of the patient depends upon the management adopted. With a diet properly adjusted to meet the precise extent of impaired assimilative power existing there is virtually nothing in operation to produce abnormality. It is true, looked at in its entirety, that we have not a perfectly normal state before us. The power of properly disposing of carbohydrate matter is lacking, but if the demand is not made for the exercise of the absent power nothing abnormal is observable. It is only when the demand is made and not responded to that evil consequences arise; and it is to the presence of sugar *per se* in the system that the result is due.

To set things really right the restoration of the defective assimilative power is wanted. This, whilst often in a certain class of case to a considerable extent attainable, is not so much at our command as could be desired. The prevention, however, of the baneful effects of the sugar arising from unassimilated carbohydrate matter stands upon a different footing and in the "*alimentary*" case can be reckoned upon as attainable. But everything depends upon the concurrent compliance of the patient with the required attention to the necessary management. If this is not loyally rendered serious consequences are sure to follow. Sooner or later the toxic influence of sugar in pronounced quantity reaching the system will assert itself and produce characteristic troubles of various kinds attended with a general decline of power, all of which might have been averted—I am speaking of a case controllable by diet—by keeping the sugar under. The contrast in the progress of patients where the sugar is kept under and where it is not is very marked. In the one there is nothing to interfere with the maintenance of health whilst in the other health and strength fail till by some concurrent ailment the patient is carried off.

Any number of cases might be brought forward in illustration of what I have stated. I will content myself with citing the following case, in which one of the most common of the baneful effects of sugar in the system—viz., peripheral neuritis—was encountered in a very severe form. The patient first consulted me in the autumn of 1895. He was then 51 years of age and had been the subject of diabetes for a year and a half. He was on a partially restricted diet and his urine contained 55·54 per 1000 of sugar. In four days, under the altered treatment adopted, including the restricted diet, the sugar had fallen to 16·66 per 1000 in the urine passed at night and 12·50 in that passed in the morning. Three weeks later the sugar had disappeared. A month after this three ounces of ordinary wheaten bread per diem were allowed without bringing back the sugar. About six weeks later he was taking six ounces per diem and passing no sugar. Six months elapsed, the patient had dropped his treatment and the urine had returned to the state it was in when I originally saw him. The date now reached was July, 1897. Restriction of diet immediately altered the condition and throughout 1898 a fairly satisfactory state was maintained. On Nov. 15th, 1899, the patient was brought to me in a deplorable plight. His urine contained 68·40 per 1000 of sugar, and he was suffering from urgent thirst and the other ordinary accompaniments of diabetes. His legs were affected with peripheral neuritis. The pain in them prevented his obtaining sleep at night, and there was such hyperæsthesia that he could not allow one to rest upon the other or find an easy position for them in bed. There was the usual loss of knee-jerk and from the ataxic state existing he could not walk alone. The condition soon yielded to treatment, the sugar becoming at once reduced to only a small amount without being completely lost. On Feb. 1st he was free from trouble in his legs and the sugar then stood at 9·30 per 1000 in the night specimen and traces in that of the morning. On Feb. 21st the report was a trace of sugar in both night and morning specimens of urine.

It is the passage of a case from the "*alimentary*" into the "*composite*" form which gives a serious aspect to the outlook. The liability to the occurrence of this transit varies with the associated circumstances. Age, as is well known, constitutes an important factor in connexion with the matter. Our prognosis has to be founded upon the knowledge supplied by experience of the progress observed in association with the particular collateral circumstances existing. We may have to deal with the disease, at the time being in the alimentary form, in an elderly and in a young subject. Experience tells us that the issues to be looked for are respectively very different.

In the young subject marked progressiveness constitutes the great feature noticeable, and it is this which gives the formidable character to the complaint that it possesses at this period of life. Treatment which at an early stage of the case proved readily efficacious in subduing the symptoms in the course of time loses its effect, and advance having been made to sugar being drawn from the tissues the urine can no longer be brought into a sugar-free state. The rate of progress varies in individual cases: the younger and more sensitive the subject the more likely is the advance to be rapid. The worst subjects for the complaint are those of a highly-strung nerve organisation, those who are disposed to worry over or meet with friction the ordinary events of life, and those who without such a nature are placed in a position to involve exposure to mental disquietude. A deviation from the ordinary progress sometimes presents itself in cases with a hereditary history. As a rule, these cases show no difference from those without such a history, but I can say from experience that now and then instances present themselves where even setting in at childhood the complaint may run on for several years without making any serious progress. It seems as if a flaw in the chemistry of life had been handed down which takes a long time in attaining full development. Amongst members of the Jewish race the complaint is not only particularly common but heredity is very conspicuous. As a counterbalance I consider it may be said that the progressive tendency is not so pronounced as amongst other people. Above middle age a marked diminution of the progressive tendency is noticeable, and thus an opportunity is afforded for a success in treatment not attainable in young subjects. In many cases if taken early—and this I am under the impression is a point of considerable significance—the assimilative power may become so far restored as to permit of an ordinary diet being taken without being attended with the passage of sugar.

A patient whom I saw for the first time in September, 1896, stands as a striking example of this result. He was then 57 years of age, and about three months previously had been sharply attacked with thirst, polyuria, and wasting. Diabetes was recognised, and under an altered diet the urgency of his symptoms became subdued. When I saw him he was on a partially restricted diet, and his urine contained 35·71 per 1000 of sugar. Codeina was ordered in conjunction with the fully restricted diabetic diet. In two days the sugar had fallen to 10·2 per 1000 and three days later it had disappeared. He increased in weight and in every way improved till towards the middle of November, when somewhat suddenly a fall in weight set in with a feeling of prostration like that which he had experienced at the beginning. He was under the apprehension that a relapse had occurred. His urine was in a sugar-free state, and I have mentioned that under such circumstances the symptoms presented indicate returning assimilative power and want of carbohydrate. Three ounces of ordinary bread per diem were allowed and improvement immediately followed. At the end of November the amount of bread was raised to 4½ ounces. On Dec. 23rd the weight was again falling and weakness was complained of. The condition was satisfactorily met by increasing the bread to 6 ounces. In the early part of February, 1897, the bread was raised to 7½ ounces. At the end of July a satisfactory state existed. In the entry for Sept. 24th, just after my return from the vacation, it is stated that through passing more urine and losing weight the patient feared there might be a return of sugar and that he had on his own account reduced the bread with the effect of producing a marked loss of weight. The allowance was raised to 9 ounces and recovery of weight took place. In October the bread was increased to 10½ ounces, and in December to 12 ounces. A steady rise in weight had now set in and was afterwards continued. I see it noted that

between Oct. 21st and Nov. 11th there was a gain of 3 lb., between Nov. 11th and Dec. 9th 8 lb., from this to Jan. 6th, 1898, 5 lb., then to Feb. 3rd 3½ lb., March 10th 3½ lb., May 3rd 7 lb., and June 14th another 7 lb. The patient was now taking starchy food in the form of potatoes in addition to his bread, and in December, when he had put on 8 lb. more weight, it was considered advisable to draw in somewhat as he was becoming too corpulent. He is a thorough disciplinarian with a strong desire to do everything to maintain his health. I last saw him in December, 1899, when he was in a good firm condition and passing urine free from sugar.

From time to time cases of this kind present themselves but more frequently the restoration of assimilative power advances to a more limited extent and then remains stationary. Variation in the point attained exists, and in the position thus to be dealt with starchy food within the limit of assimilative power regained does not throw sugar into the urine, whilst beyond the limit it does. Such a state of things may go on without any appreciable alteration for months and years, the urine all the while constituting a tell-tale of when the food taken has exceeded the tolerating power.

Extending our survey, cases are come across in which in the course of time the tendency for the assimilative power to grow weaker shows itself, but in these cases the rate of progress is not to be compared with that typically belonging to the disease in young subjects. It is observed that food which at one time failed to give rise to the passage of sugar at a later period does so, and that after the lapse, it may be of many years, the complaint passes from the "*alimentary*" into the "*composite*" form. The following is a case in point.

A patient whom I first saw in 1885, and who was then 48 years of age, had no difficulty by moderate attention to diet in keeping his urine free from sugar. In the early "nineties" considerably stricter attention, which was not steadily given, was needed for the purpose. So the case has run on, the urine being sometimes for a while kept free from sugar and at other times not. According to the latest evidence recorded the sugar has ceased to be removable from the urine by diet. In April last the urine upon a strict diabetic diet contained upwards of 30 per 1000 of sugar and gave an indication of the presence of both diacetic and oxybutyric acids. The case, therefore, has now passed from the "*alimentary*" into the "*composite*" type of the disease.

In concluding what I have to say upon this part of my subject I consider that I cannot lay too much stress upon the importance as a measure of treatment of exerting our endeavours in the first place to put, and afterwards steadily to maintain, the urine in a sugar-free state, but whilst accomplishing this object no further curtailment of carbohydrate food should be made than is found to be necessary for the purpose. My experience decidedly leads me to say that without a removal of the sugar, whereby the aid of a natural state of system is supplied, no restoration of assimilative power is likely to occur. Freedom from mental strain and friction is a great adjuvant in treatment.

THE "COMPOSITE" FORM OF DIABETES.

In this form of diabetes we have a twofold source for the sugar—the carbohydrate of the food and a morbid breaking down of tissue. Through this latter process being attended with the formation of supplementary products which pass with the sugar into the urine means are afforded for recognising the condition. We are placed, also, in a position to check the account given by a patient. If there is no indication of the presence of oxybutyric acid revealed by the results supplied on estimating the sugar by cupric oxide reduction and by the polarimeter, or of that of diacetic acid by the ferric chloride test, it may be concluded that the sugar existing in the urine has been derived from ingested carbohydrate of some kind or other. If it be asserted that none has been taken, error, wherever it may lie, must exist in the statement. If it should happen that deception is attempted to be practised it is the patient who will have to bear the self-inflicted harm, but it must not be lost sight of that carbohydrate may easily in an accidental way be unconsciously taken, and sometimes the source of delusion is the diabetic food consumed in the place of ordinary bread which wrongfully fails to represent what is professed.

Oxybutyric acid requires careful manipulation and an experienced worker for its reliable employment as a source of information, but much advantage is gained from the knowledge which it supplies. In the first place its presence means a more or less advanced stage of the tissue breaking-down process, and thereby a nearer approximation to the liability to the supervention of diabetic coma, than does that of diacetic acid; and in the next its amount can be definitely read off, through which again information is supplied bearing on the prospect in relation to coma. As has been mentioned it is through its left-handed rotatory power that its determination is effected. When present with dextrose the neutralising effect which it produces on the dextro-rotatory reading that would be given by this body reduces the figures obtained and thus throws them below those given by cupric oxide reduction. Further, when the dextrose is fermented away with yeast the urine is left with the levo-rotatory activity belonging to the oxybutyric acid present.

I have in an earlier part of this communication spoken of the Gerhardt, or ferric chloride, test, which is the test employed for diacetic acid. The amount of the principle present is judged of by the intensity of the colour produced and it is convenient in recording it to represent it by one, two, or three + signs. From the record before me of about 250 observations I can personally testify to the value of the information that is afforded by the method of examination to which allusion has been made. Naunyn and some other authorities have published results which agree with mine. We must not look too rigorously for uniformity in all cases in the results obtained. Discrepancies here and there occur, as yet without apparent reason, in the difference between cupric oxide reduction and optical activity compared with the optical activity after fermentation. It has been suggested (Külz and others) that a certain amount of levulose is sometimes present with the dextrose, and other conjectures have been put forward. Upon this point of detail there is room for further inquiry, but taking the series of results as they stand linked together in a given case they speak in a manner that cannot be mistaken. For the purpose of illustration I will take some representative examples from my collection and give them in a tabulated form.

"ALIMENTARY."

Dextrose per 1000.		Optical activity after fermentation.	Ferric chloride reaction.
By CuO reduction.	By polariscope.		
54·7	55·7	Nil.	Nil.
26·0	25·5	Nil.	Nil.
50·0	50·8	Nil.	Nil.
77·7	77·3	Nil.	Nil.
76·4	76·0	Nil.	Nil.
20·8	21·6	Nil.	Nil.
19·2	19·6	Nil.	Nil.
14·0	13·1	Nil.	Nil.

"COMPOSITE."

Dextrose per 1000.		Levo-rotation after fermentation. Dextrose value per 1000.	Ferric chloride reaction.
By CuO reduction.	By polariscope.		
35·7	30·1	5·4	+ +
52·0	44·9	3·9	+ + +
22·6	14·5	6·8	+ + +
54·7	49·1	5·1	+ + +
72·0	62·2	4·7	+ +
30·6	23·7	7·5	+ + +
17·2	13·7	3·6	+ +
31·5	27·8	3·6	+ +
27·0	1·3	5·6	+ +
56·2	48·0	7·2	+ + +
33·7	27·8	5·9	+ +
36·0	30·2	5·0	+ + +
12·1	5·0	5·0	+ +
16·3	10·5	4·7	+ +
19·2	13·6	7·2	+ + +

It is, as I have already stated, the passage of the case from the "*alimentary*" into the "*composite*" type that supplies the bad forebodiug. Many cases run on for years without the transition occurring and if the sugar is properly kept down no harm arises. A patient consulted me in February, 1886. He was then 51 years of age and had been the subject of diabetes for one and a half years. His symptoms were severe and his urine contained 50 per 1000 of sugar. In a specimen of urine recently examined sugar was present but oxybutyric and diacetic acids were absent. Length of time, however, in the "*alimentary*" form affords no guarantee against the passage of the case into the "*composite*," but my experience would lead me to say that the more completely the elimination of sugar is kept under the less likely is the transit to occur. The case cited above of the patient whom I first saw in 1885 serves as an illustration applicable here. After running on for about 15 years in the "*alimentary*" form progress has recently been made into the "*composite*" form. In December last there was a slight amount of diacetic acid present without any oxybutyric acid. In April considerable quantities of both existed.

As an example of rapid development of the "*composite*" form (and I do not know that it may not in some cases set in with the onset of the disease) I may refer to the case of a female patient, aged 18 years, of a very sensitive organisation whose first symptoms of diabetes occurred in November and who was brought to me in February with urine containing much sugar associated with large quantities of oxybutyric and diacetic acids.

When the abnormal tissue breaking down, which is attended with the production of sugar and the associated products that have been referred to, sets in it is obvious that a serious aggravation of the previous condition becomes established. Under the morbid influence in operation the tissues melt down into unexhausted products which escape as waste with the urine. No wonder under these circumstances that the weight should cease to be maintained. A sensibly advancing fall is noticeable and when the patient survives for some time without being carried off by coma or otherwise, marasmus may progress till reduction almost to the semblance of a skeleton is attained.

The diabetic coma to which the patient in the "*composite*" form of diabetes so frequently succumbs is the result of a true autotoxicosis. The term "acetonæmia" has been applied to the condition from the idea formerly entertained that acetone was the toxic agent. If there is a pronouncement, however, that can with confidence be made it is that the term, as in the parallel instance of "uræmia," is an entire misnomer. From the evidence in our possession neither acetone, diacetic acid, nor β-oxybutyric acid can be looked to as possessing the toxicity needed to account for the coma. A proposition has recently been put forward which has the appearance of being entitled to our weighty consideration. Sternberg[1] has suggested that it is to β amido-butyric acid, a probable precursor of oxybutyric acid in the acetone series of products, that diabetic coma is attributable. The view is supported by the fact that after the experimental introduction of the β amido-butyric acid into the circulation exactly the same train of symptoms, even to the "air-hunger" kind of breathing, follows that is met with in diabetic coma. Grube[2] has repeated these experiments and obtained completely confirmatory results.

That a within developed toxic agent is the source of the coma is strikingly exemplified by the effect of a measure of treatment that has been upon occasions resorted to. By the intravenous injection of large quantities of various saline solutions patients have been restored from a comatose to a conscious state. Unfortunately the effect has only been temporary. The toxic agent, it may be assumed, has for the time been washed out of the system, but owing to the genetic action going on has soon reaccumulated.

The reaction with the ferric chloride is not necessarily to be taken as indicative of a bad forebodiug. There are circumstances under which diacetic acid is only temporarily present and it is only when persistently in some quantity present that it is to be concluded that a grave condition has been reached. With starvation and an excessive amount of proteid food, apart from diabetes, ferric chloride may be found to give a reaction and the reaction may appear for a time when a diabetic patient is first put upon the restricted diet to disappear subsequently when the system has adapted itself to the altered food. I have seen this sometimes occur. In the experimental pancreatic diabetes the sugar is accompanied by diacetic acid and its associates, and such is also the case in phloridzin glycosuria when fasting is conjoined. Under these several circumstances a supply of carbohydrate matter contributes to the removal or reduction of the principles. Fat also appears[3] to act in a similar way. It seems as if the carbohydrate and fat groupings within the proteid molecule saved the nucleus of the molecule, and that when these are absent the molecule itself undergoes destruction. Placed in such an extremity, with the dangers of Scylla and Charybdis before us, we may consider it wise to steer a middle course in relation to food.

Grosvenor-street, W.

[1] Zeitschrift fur Klinische Medicin, 1899, vol. xxxviii., p. 65.
[2] THE LANCET, March 10th, 1900, p. 706.
[3] Geelmuyden: Zeitschrift fur Physiologische Chemie, 1899, vol. xxvi., p. 381.

THE PRIMARY DISORDERS OF GROWTH.

BY HASTINGS GILFORD, F.R.C.S. ENG.

(*Continued from p. 1648.*)

THE method which has been adopted to show the class unity of the various diseases which have been mentioned may be termed the synthetical method, for it consists in the construction of the class from its elements. The propositions which are embodied may be "proved" by the converse or analytical method—i.e., by taking individual diseases and showing how each one answers to certain tests which are common to the class. Many of the diseases under consideration are so unlike one another that it at first seems almost impossible that they can have similar bases. This may be said, for example, of such divergent diseases as local giantism of the extremities, primary Bright's disease of the kidneys, pernicious anæmia, and Addison's disease. But there are other diseases of the group which connect these together and make it easier to grasp their essential identity. Thus, while it requires some effort of the imagination to see the connexion between, say, a giant extremity and a large white kidney, it is but a step between the giant hand and the giant breast. Further, the process which gives rise to the giant breast is evidently of the same nature as that which produces the giant thyroid of goitre. The latter, it is true, contains, as a rule, large numbers of cysts; but that is a detail which results, not from any difference in the nature of the disease, but from peculiarities in the structure of the gland itself. From the fibrous or cystic thyroid to the fibrous, large white, or cystic kidney is but another step, and so the connexion between the giant hand and the giant kidney is completed. After the same fashion it can be shown that there are all stages between the purely fibrous adrenal body and that which is composed almost solely of tubercle-like cells or is unquestionably tuberculous. Moreover, that the process which leads to destruction of the adrenal body in Addison's disease is essentially of the same nature as that which gives rise to cirrhosis of the liver or to primary Bright's disease of the kidney is also indicated by the occurrence of cases in which adjacent parts of the liver and kidney are implicated by contact with diseased adrenals. Under this circumstance a local change is set up in these organs which is exactly the same as that which takes place in cirrhosis and in Bright's disease respectively.[1] But the primary nature of the lesion of Addison's disease and its identity with the fibrous degenerations of the lungs, spinal cord, liver, and kidneys have been already dealt with by Sir Samuel Wilks.[2]

In the course of the study of these primary disorders of growth it soon becomes evident that there are certain rules or postulates which bind them together and which greatly help in their elucidation. Some of these are so important and so absolute that they almost deserve the more dignified name of laws. Of these, two of the most important are that "any organ or part which is capable of growth is

[1] Professor Burdon Sanderson, Transactions of the Pathological Society of London, vol. xx., p. 38.
[2] THE LANCET, June 13th, 1885, p. 1101.

subject to the primary disorders of growth" and "the greater the fluctuations of natural growth the greater is the liability to disorders of growth." A good example of the operation of the latter rule is to be found in the female breast, which is both subject to many changes of growth in health and is also, perhaps, of all organs the one which is most liable to the primary growth diseases, from a simple hypertrophy to the ultimate descent into cancer. A good instance of the application of the first of the two rules is to be found in the growth diseases of the blood. It is, I suppose, certain that the blood must be regarded as a fluid tissue, one of whose functions is to act as a medium; and being a tissue and capable of growth we know that, like all other tissues, it must also be liable to the disorders of growth. Only two of these need now be referred to. One is hypoplasia, or pernicious anæmia, the other is degenerative hyperplasia or leukæmia. In pernicious anæmia the cells of higher type (red discs) are alone diseased, the less differentiated white cells not being affected. The explanation of the course of events in pernicious anæmia may be put briefly as follows. In health there is provision both for the destruction of imperfect or used-up red discs and also for the making of new discs to take their place. Red bone marrow is the chief source of the new blood, while the blood itself, and after it the liver, kidneys, and spleen, are the organs which are most concerned in the scavenging process of blood destruction. In pernicious anæmia there is a perversion of the natural processes of blood growth which leads to the appearance of a number of badly formed or embryonic discs, instead of well-made, healthy discs. But the blood destroyers cannot distinguish between these defective discs and those which are used up in the normal wear and tear of the body; they therefore ruthlessly break up and destroy in the blood all the imperfect cells as rapidly as they can. But increased destruction of red discs leads to their increased formation and a spurious hypertrophy of the red marrow takes place in consequence. In this way the vicious circle of bad workmanship, increased waste, and increased output is completed. A similar process goes on in connexion with the white cells in leukæmia, though it is varied in accordance with the variation in the nature of the tissue which is affected. The leukæmias are obviously the degenerative hyperplasias of the blood. Their clinical history is in the main that of other forms of primary degenerative disease. They are sporadic, idiopathic, progressive but liable to periods of amendment, pernicious, and incurable. They are distinguished by increase of cells of low type (leucocytes) and decrease of cells of higher type (red discs). Running with this is spurious hypertrophy of one or other of those organs (the lymph glands, the spleen, &c.) which are concerned in the making of leucocytes, corresponding with the pseudo-hypertrophy of the red marrow in pernicious anæmia. This morbid process may be of mild degree, lasting for years, or it may run a fiercer course, cutting short the life of the individual within a few weeks, and being in all important respects indistinguishable from a sarcomatosis. But whether it lasts for a long or a short period it is equally a vice of growth, essential in nature, dependent upon no tangible cause, but due to a radical retroversion of tissue to a condition of savage independence.

Having glanced at some of the less evident forms of primary growth disorders it will now be best to choose some one organ and pursue its disorders through their various forms. Perhaps one of the best that can be chosen for such a purpose is the skeleton.

THE PRIMARY GROWTH DISORDERS OF THE SKELETON.

A. *Hypoplasia of the skeleton*[3].—This is a disease which has not hitherto been systematically described, though it sometimes shows itself in very marked forms. Its features are as conspicuous and as clearly defined as are those of rickets or cretinism. Two of the best known instances are those of Charles Stratton (Tom Thumb) and his wife (see Fig. 1). There is a skeleton of another in the museum of the Royal College of Surgeons of Edinburgh, and of another in the museum of the Royal College of Surgeons of England. The principal features of the disease are as follows. It is prone to occur in more than one member of the same family. It is a form of dwarfism, and its peculiarities will perhaps be best understood by comparing it with other kinds of dwarfism and especially with rickets. It is distinguished from all other forms by marked delay in the rate both of growth and development of the bones while the intelligence is not affected. Most other kinds of dwarfism are due to defects of growth only, and in all of them bone growth is more affected than bone development. The subjects of hypoplasia probably never attain their normal stature, though growth continues until long after it has usually ceased. It is probable that the soft tissues of those affected with this disease follow a rule, which may be termed that of adaptation of growth, to distinguish it from that which is known as correlation of growth, which has not quite the same meaning. A good example is afforded by rickety dwarfs, in whose case the growth of the muscles and other soft parts does not continue to any extent after the bones have ceased to grow, but becomes adapted to the requirements of the stunted and deformed skeleton. Adaptation of growth is still better shown in this hypoplasia of the bones, where it is even more perfect than it is in rickets, for the rickety dwarf has muscles which are often in excess of his needs, and is, therefore, too strong for his size and of a thick-set and clumsy appearance. Hypoplasia, moreover, differs from rickets in that while in rickets the adaptation is one of growth only, in hypoplasia of bone it affects development as well. Rickety dwarfs pass through the various stages of life like men and women of common stature, whereas in these other dwarfs the appearance of youth, manhood, and maturity are greatly delayed or do not appear at all. The growth and development of the bones are delayed, not arrested, and the growth and development of the soft parts follow suit. Immaturity of the bones is associated with immaturity of the rest of the body. This is shown especially in the face and in the general proportions of the figure. Adult dwarfs of this type may have the faces and proportions of young children. They have, as a rule, broad faces, snub noses, large broad heads, and short limbs. Puberty may not come on until after the age of 30 years, or it may not appear at all. At the same time this immaturity is one of appearance only, for these dwarfs, as a rule, die as soon as, or sooner than, ordinary individuals. There are, however, some notable exceptions.

Associations.—It is probable that, like other primary growth disorders, hypoplasia of the skeleton is prone to be associated with defects or excesses of other parts. Very few cases of this disease are recorded, but among them is one in which such an association is mentioned. Mr. Hutchinson[4] has described a case of dwarfism in which there was marked immaturity of appearance and which to all appearance was an example of this same disease. This man was affected with another growth anomaly in the shape of hyperplasia of the gums. One case is reported in which the hypoplasia seems to have taken on degenerative characters. This case is described by Dr. Paltauf in his monograph on Dwarfism (p. 41). Together with marked delay of ossification there was osteomalacia which was the cause of death. There was also cirrhosis of the liver.

B. *Hypertrophy of the skeleton.*—While hypoplasia occurs as a form of dwarfism hypertrophy is only found among those who are tall or gigantic. It is not yet possible to say where giantism of this type ends and acromegaly begins, or what is the exact relation between the two. Some writers hold that giantism is always due to acromegaly, but this opinion has not as yet been substantiated. On the contrary, there seems good evidence for the view that there are cases of giantism which are quite unconnected with acromegaly. There are instances on record of giants who have differed from the acromegalic in having lived to the average duration of life, in the enjoyment of good health and in the possession of offspring. A good example of this form of giantism is furnished by the celebrated Mongolian giant Chang. Though it is not stated that he had children Frank Buckland[5] and others who saw him say that he showed no signs of disease and was of good intelligence, strong, and healthy. He himself stated that his brothers were giants. He is said to have died at the age of 47 years. Captain Bates, who was 7 feet 2½ inches (2·19 metres) in height, and Mrs. Bates, who was 7 feet 5½ inches (2·27 metres), were also good examples of the same condition. The Austrian Winkelmeyer who was described by Virchow[6] was another. (See Fig. 2.)

In hypertrophy of the skeleton adaptation of growth is, as a rule, obviously defective, the growth of bone being often

[3] It is impossible to do justice to this subject within the limits of this article. All that is intended is to show that there is such a condition as primary hypoplasia of the skeleton.

[4] Edinburgh Medical Journal, New Series, vol. i., No. 2, p. 117.

[5] Curiosities of Natural History, 4th S., p. 10.

[6] Zeitschrift für Ethnologie, 1885, S. 489.

conspicuously in advance of that of the soft parts. Those affected with this disease are therefore inclined to be disproportionately tall, thin, weak, and shambling in gait. Doubtless the chief, if not the only, reason why adaptation is so imperfect in giants is because in their case the disease shows itself at a later age and so much more rapidly than is the case with hypoplasia. The latter commences in childhood and continues through the rest of life, whereas giantism begins, as a rule, at or near puberty and is completed at the ordinary period of cessation of bone growth. The one runs its course slowly and so gives time for the growth of the soft parts to be accommodated to the growth of the bones; the other is so rapid in its course that the growth of the soft tissues is soon left hopelessly in the rear. Hypertrophy of the skeleton, like hypertrophy of other organs, is often by no means well defined, but merges imperceptibly in different cases into normal growth. The bones of giants are often decidedly coarse in texture, but there seems to be no evidence that the process ever goes so far as to become degenerative and to lapse into osteitis deformans.

Heredity; associated disorders.—Perhaps the best instance of the hereditary transmission of giantism on record is that of Captain Bates and Mrs. Bates,[7] whose first child weighed no less than 22¾ lb. (10·77 kilogrammes) at birth. Instances of giantism occurring as a family disease are also recorded. Giantism is so rare that the association with it of other growth disorders has much significance. One of the earliest cases is mentioned in the Bible. It is there said that Goliath of Gath had a brother who was a giant and that he had a son of "great stature" who had on every hand six fingers and on every foot six toes.[8] An instance of the family association of giantism with superfluous digits is also recorded by Mr. R. C. Lucas[9] who, in giving a genealogical tree of a family liable to the latter disorder, put at the head a great-great-grandmother who possessed no deformity but whose son was said to have been exhibited as a giant and who had a daughter with six toes on each foot. The second child of the latter had six toes on each foot and grew to be a man of over six feet in height. Several other children and grandchildren had webbed supernumerary digits and two were

FIG. 1.

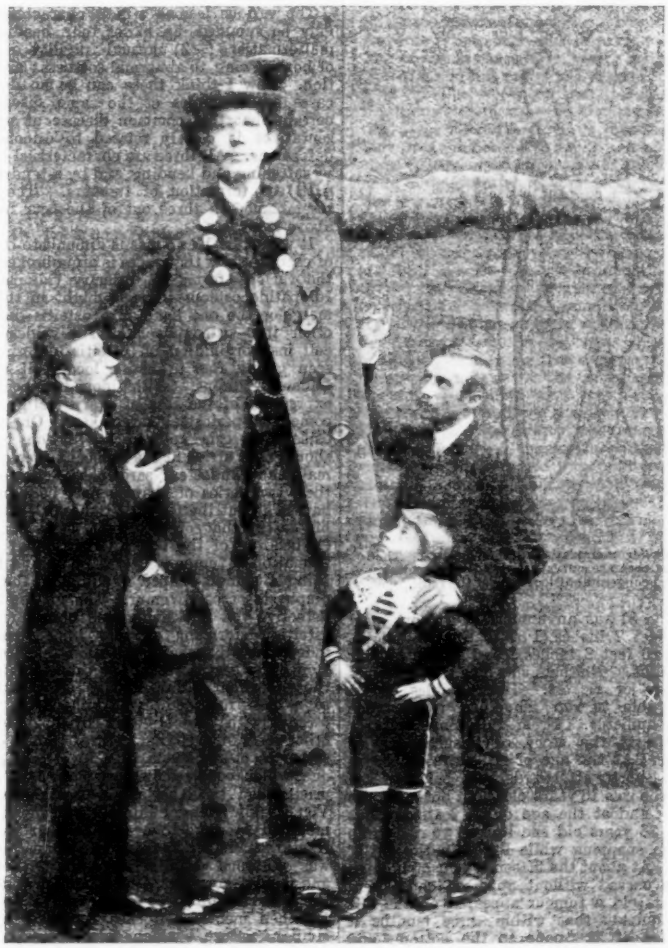
Hypoplasia of the skeleton. "General and Mrs Tom Thumb." The faces and general proportions show stereotyped infantile characters. X marks 25 inches, showing that these dwarfs were 25 inches (0·635 m.) high.—(From a photograph by the London Stereoscopic and Photographic Company, Limited.)

[7] New York Medical Record, March 22nd, 1899.
[8] 2 Samuel, xxi. 20, and 1 Chronicles, xx. 6.
[9] Guy's Hospital Reports, S. 3, vol. xxv.

afflicted with hare lips. We also read of a German giantess[10] who lived in the reign of Queen Anne and had neither hands nor feet. In the same book is an account of a male patient who possessed marked feminine characters, and another instance of this association is related by Dr. Hallopeau.[11]

C. Degenerative hypoplasia of the skeleton.—Perhaps the most conspicuous feature of this complaint is unusual fragility of the bones. It is, in fact, one of those diseases which are grouped together under the loose name of fragilitas ossium. Many instances of undue brittleness of the bones are caused by the presence of new growths or are the result of long disuse or have some other known origin. But among them we also find some which are dependent upon no ascertainable cause but seem to arise spontaneously in bones which are affected with a special dyscrasia. It is these that are now referred to as instances of degenerative hypoplasia or metaplasia of bone. Some of them approach osteitis deformans in their symptoms and appearance, while others more closely resemble osteomalacia. It is probable that the degeneration sometimes starts in the substance of the shafts and gives rise to the one disease, and sometimes in the marrow and gives rise to the other. A good instance of the osteomalacic form of degenerative bone hypoplasia is furnished by Mr. Clinton T. Dent.[12] In this case the disease first showed itself by fracture of a bone at the age of four months. Bending of bones then took place, and at the age of 29 years, when the account was written, the case differed in no essential particular from one of osteomalacia. Numerous fractures had occurred, there was extreme softening of the bones, with characteristic deformity, and the only distinction from osteomalacia that was of any consequence consisted in the shafts being smaller instead of bigger than usual. The skiagram which illustrates the paper shows that while the epiphyseal ends of the long bones were very large, the diaphyses were even smaller than they are in health, thus reversing the relative proportions of these parts as they occur in ordinary cases of osteomalacia. But after all this is only to be expected in a condition of hypoplasia. In this

FIG 2.



Hypertrophy of the skeleton (Winkelmeyer). Giantism probably not associated with acromegaly. The growth of the soft parts is not well adapted to the increased growth of the bones. X marks 25 inches. The central figure is 7 feet 6 inches (2·28 m.) high, so that the figures of "General and Mrs. Tom Thumb" would reach about to the giant's knee had they been drawn to the same scale.—(From a photograph by the London Stereoscopic and Photographic Company, Limited.)

[10] Gould and Pyle: Anomalies and Curiosities of Medicine, p. 330.
[11] La Semaine Médicale, 1899, No. 7, p. 53.
[12] Transactions of the Medical Society of London, vol. xx., 1897, p. 339.

connexion the following case is most instructive, for it not only serves to indicate that there is a relation between the idiopathic form of osteopsathyrosis, and osteomalacia and osteitis deformans, but it also helps to show the position of osteopsathyrosis as a growth disorder.

FIG. 3.

Degenerative hypoplasia (or metaplasia) of the skeleton. The chief features of this case are curvature, fragility, bending, tumour formation, and congenital dislocations of the radii.

The patient (see Fig. 3) was an unmarried woman, aged 38 years, who was 4 feet 7 inches (1·67 metres) in height, whose father was tall (6 feet 2 inches), and whose mother was of ordinary height. Neither she nor her parents had ever had syphilis or rickets. Her troubles began when she was just able to run alone, at which time she broke her right humerus. From this time onwards the story of her life is the story of a succession of fractures and tumours. At the age of six years she broke the left humerus and shortly afterwards both bones of the right forearm; when she was 16 years old both bones of the right leg were broken; and at the age of 33 years the left tibia. When she was 36 years old she broke two ribs while coughing, one of them snapping while I was in the act of binding up the other. At about the fifteenth year of her age the right leg became curved without apparent cause, and when she was 16 years old a tumour appeared on the left femur and grew so quickly that within three months it extended from the top of the bone to the bottom, and gradually hardened. While lying in bed because of this swelling the left leg became bent as the right had been. At the age of 34 years a small, hard tumour of the size of a hazel nut appeared above the right external malleolus, and in her thirty-seventh year another—of the same nature, but of larger size (as big as an orange)—sprang from the right humerus. Finally, a much smaller and more diffuse swelling appeared on the projecting part of the left tibia.

The general health of this patient is excellent and there are no evidences of either rickets or syphilis. There is a congenital forward dislocation of each elbow limiting pronation of the forearm, and, to a less degree, supination as well. There appears to be no cup to the head of the radius and the shaft of that bone is longer than usual. The shaft of the ulna is bent near its upper extremity. The tumours are apparently composed of bone and cartilage.

Mr. J. Hutchinson[13] has drawn my attention to a case under his care which bears a remarkable likeness to the one which I have just described. This patient, who was a girl aged 10½ years, showed the following lesions—viz.: (1) fractures of the right forearm (three times), the left forearm (twice), the right leg (three times), and the right thigh (all these fractures united without leaving any very evident traces); (2) absence of the external condyle of each humerus so that the finger could be placed on the upper end of each radius; (3) bending of each ulna in its upper third and of each humerus; and (4) formation of tumours of the lower half of the right femur and also of the middle of the left femur. The former subsequently disappeared but the latter had not gone when the account was written.

The various lesions which characterise these two cases may be summed up under four headings: (1) congenital malformations; (2) unusual fragility of bone; (3) bending of bones owing to abnormal softness; and (4) tumour formation. Now I think there can be no doubt that these two cases are examples of the same disease. It also seems certain that this common disease of which they are representatives is closely related to osteomalacia and osteitis deformans. All three are characterised by fragility of bones, by softening and bending, and by a tendency to be associated with the formation of tumours. They therefore show a resemblance in three out of the four main features of the above two cases.

It would be by no means difficult to bring forward a series of cases to show that there is an unbroken connexion between the various forms of primary (idiopathic) bone disease. Idiopathic osteopsathyrosis might in this way be shown to merge on the one hand into osteitis deformans and on the other into osteomalacia. The widespread, but slighter, cell insubordination of osteitis deformans might next be seen giving rise to those local cell riots which we call tumours, fibrous, cartilaginous, or bony. Finally, as the expression of the loss of every vestige of restraint, would come the periosteal sarcomata. Or, beginning again at osteopsathyrosis and tracing it on to osteomalacia, we should next arrive at the innocent myelomata and end at the malignant endosteal sarcomata. Some good instances of these two series of changes may be found in von Recklinghausen's contribution to Virchow's Festschrift.[14] In one of his cases (that of a patient, aged 66 years) there were: (1) bending of the bones, (2) irregular thickening, and (3) formation of tumours, cystic, bony, and fibrous, among them being a spindle-shaped swelling of the upper part of the diaphysis of each femur. Though the anamnesis was very defective von Recklinghausen considered the disease to be osteitis deformans of very long standing, commencing, indeed, in all probability within the first ten years of life. Hence the first onset of the osteitis deformans came within the age which is favoured by osteopsathyrosis. He alludes to a case recorded by Virchow of "diffuse deforming osteitis with tumours and cysts," and he himself gives other cases of a similar nature. Some of these were allied rather to osteomalacia than to osteitis deformans. Thus in one, which occurred in a woman, aged 55 years, there was pronounced bone softening together with cystic growths. Von Recklinghausen himself considered it to be a case of modified osteomalacia. In another were cysts, numerous fractures, and a very thick calvarium. In yet another there was "fibrous osteitis," together with multiple sarcomata, and many fractures. His opinion was that in this last case the bone softening was primary and the sarcomata secondary. He then mentions a case recorded by Hirschberg of a similar nature, which also was considered by that observer to be primarily one of osteomalacia, the disease favouring the formation of cysts and sarcomata, and giving rise to fractures. Mr. John Langton[15] has also recorded an instance of the association of idiopathic fragility of bones with the formation of tumours. In this case the first fracture occurred at the age of 11 years and was followed 17 years afterwards by the breaking down of the union of this first fracture and the growth in the bone of a spindle-celled sarcoma. It seems clear from these and other cases that there is no dividing line between osteopsathyrosis, osteomalacia, and osteitis deformans. They run one into the other, have a similar clinical basis, and,

[13] Archives of Surgery, vol. ix.

[14] Fibrous and Deforming Osteitis, Osteomalacia, and Osteoplastic Carcinoma in their Comparative Relations, 1891.

[15] Transactions of the Clinical Society of London, vol. xxix., p. 36.

making allowances for differences of tissue or age, show similar anatomical changes.

We now have to ask ourselves—(1) What is the cause of the association of these diseases with tumours? and (2) why are the two cases of osteopsathyrosis first mentioned associated with congenital malformations? The answer to the first question is almost implied in what has already been said. There is every reason to suppose that all three diseases are degenerative affections of bone or marrow and that, like other degenerative diseases of growth, they constitute favourable soil for the growth of tumours. In this respect they resemble the degenerative hyperplasias of the epithelial layers of the tongue, and similar degenerative overgrowths of the thyroid gland, the stomach, the prostate, and other organs. The answer to the second question arises out of the answer to the first. Their association with congenital deformities is best explained on the ground that these deformities are themselves primary growth disorders of a similar nature, though occurring at an earlier age. Primary excesses and defects of growth are in all probability of similar nature at whatever age they occur, and however differently they may manifest themselves, whether they occur as clefts or atrophies in fœtal life, as defects or excesses at any age, or as those localised outbursts which we call tumours.

Anatomy.—In the account of the histological features of this disease which are given by Professor Hamilton[16] it is evident that up to a certain point the minute anatomy is the same as that of osteitis deformans and of osteomalacia. The structural resemblances of these two latter diseases will be dealt with later. Professor Hamilton, who quotes Langendorff and Mommsen, and gives two good plates, says that there is "dilatation of the Haversian canals which are in part transformed into medullary spaces. The cement lines (von Ebner) which intervene and map out the borders of the Haversian systems have almost vanished. The borders of the trabeculæ of bone stain red with carmine, probably owing to their being deprived of their calcic salts." The bone marrow is red and hyperæmic, full of cells and poor in fat. It resembles fœtal marrow (Virchow). Giant cells are present in the dilated Haversian canals. Cyst-like cavities are also found. Parts of the trabeculæ may be purely fibrous. All this might be said of either osteitis deformans or osteomalacia. The only real differences between them are that osteopsathyrosis is the more chronic and tends to affect both marrow and bone indiscriminately. Whereas in the other two diseases the process is more active; the changes are more pronounced and tend to affect one tissue (marrow or bone) much more than the other.

D. Degenerative hyperplasia of the skeleton.—This is of two kinds, according to whether it begins in the bone marrow (osteomalacia) or in the shafts of the bones (osteitis deformans). The differences between them are not radical or essential but are due to differences of tissue, age, sex, and function alone. The evidence of their essential identity runs through their whole clinical history and morbid anatomy. Their relation one to the other and their true pathology may be demonstrated, therefore, by passing in review their main clinical and structural features.

1. Osteomalacia and osteitis deformans have the same clinical basis. Both are sporadic, though osteomalacia, like other primary growth disorders, is much more prevalent in some districts than in others. Both make their appearance without any evident cause and both destroy the functions of the part they affect. Both run a course which is progressive but at the same time not altogether even, for it is broken up, as a rule, by intervals of quiescence or of actual betterment. These intervals are sometimes so conspicuous as to lead to the hope that the disease has ceased and whatever drug is in use when the amendment takes place usually receives the credit. But almost invariably a time comes, sooner or later, when the disease makes further headway, and though improvement may again take place, yet the end is nearly always the same. The prognosis is unfavourable. Both diseases are, in short, sporadic, idiopathic, pernicious, progressive though irregular in course, and medicinally incurable. The diseases resemble each other also in certain minor details. Thus both may begin in one bone and may be confined to that bone; both are, as a rule, imperfectly symmetrical; both are attended with similar aching pains, both affect the shafts of the bones more than the ends, and in both the disease has no direct influence on other organs. They are local disorders. Both are distinguished by bending of the bones, both by fragility, though this is more pronounced in osteomalacia than in osteitis deformans.

2. The two diseases are anatomically similar. The appearances which may be seen in the marrow of a bone affected with osteomalacia may be summed up in four words. They consist of atrophy, overgrowth, regeneration, and degeneration. The atrophy affects cells of higher type, especially the bone corpuscles, which may be seen to be decidedly shrunken in that part of the shaft which borders on the marrow. The overgrowth is chiefly of the marrow, which undergoes immense increase in volume, but is also, to some extent, of the lymphoid tissue which runs up the Haversian canals. Degeneration is well seen on the outskirts of the diseased area where the marrow touches the shaft of the bone. It first shows itself as decalcification. This is, as a rule, attributed to the action of some acid, such as lactic or carbonic; but there appears to be no evidence whatever that any such cause is at work. It is far more likely that it is a vital and not a mechanical or chemical process, and that it is brought about in the first place by the pressure of the increasing marrow on the bone. It resembles, in fact, the decalcification which is produced by aneurysms when they impinge on bones, but is perhaps more obvious in these cases of osteomalacia because of the inherent tendency of the bone to degenerate. There seems no reason to doubt that the overgrowth of the marrow is under this circumstance amply sufficient to account for this decalcification, for it is not at all unusual to find the marrow in a malacic bone taking up more room than the marrow and bone together of the healthy bone. It has been noticed that in some cases, if not in all, the decalcified layer is not immediately absorbed, but after the removal of the bone salts splits up into fibres, and so, roughly speaking, reverses the order of its development. It recedes step by step from a calcified, organised, connective tissue into a decalcified, unorganised mass, as primitive as the embryonic tissue from which it started. But along with this widespread overgrowth and degeneration there is an equally widespread attempt at repair. Most of the swelling of the marrow is, in fact, due to growth of embryonic material, consisting principally of round cells with little or no intervening fibres. But the fresh growth is itself stricken with the same blight as the tissue which it is apparently intended to repair. It is quite unable to mature so as to serve any useful purpose, and in course of time it also succumbs to degeneration. Granular and fatty changes take place in the cells until they disappear in a structureless débris. Or fatty degeneration may continue until there is ultimately nothing left in the marrow cavity but oil, which pours out when the bone is cut into.

In osteitis deformans similar changes take place, modified, however, by the difference of the tissue involved. Here also we have atrophy, overgrowth, regeneration, and degeneration. There are atrophy of the more highly developed cells of the bone, overgrowth of the more lowly calcified connective tissue of the lamellæ, and the interstitial growth of fresh deposits of badly formed material. There is overgrowth also of the lymphoid tissue of the Haversian canals, with degeneration into cells which resemble those met with in inflammation. This widening of the canals and their occupation by embryonic tissue correspond with the similar changes which take place in osteomalacia. While osteomalacia is distinguished by false hypertrophy of the marrow, in osteitis deformans there is false hypertrophy of the periosteum, leading to the deposit of new bone; but the new material which is so laid down is, as in similar hyperplasia of other organs, not only redundant, but of bad workmanship. It is imperfect bone, resembling that which is found in the fœtus, and corresponds again with the embryonic tissue of the marrow of osteomalacia.

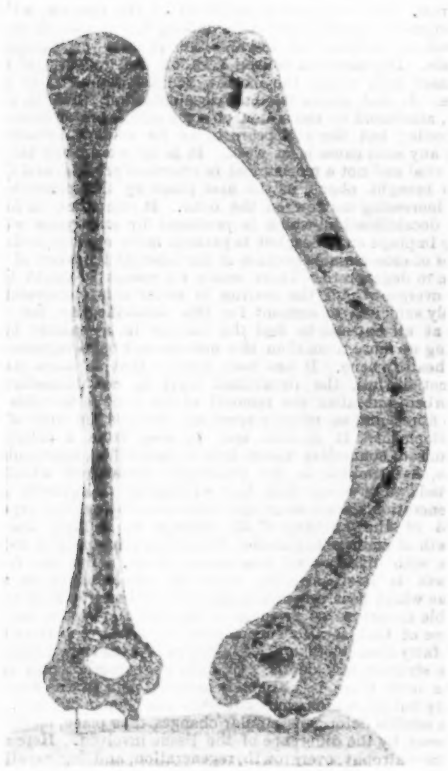
3. There is reason to believe that the two diseases may occur together. Some of the cases of osteitis deformans and osteomalacia which are reported in the medical journals present features which are characteristic of both diseases. This has already been alluded to when we were dealing with the subject of degenerative hypoplasia of the skeleton. One of these cases is described as an instance of arrested osteitis deformans and another as osteitis deformans affecting a single bone. One has been described by Mr. J. R. Lunn,[17] who says of it that "from the microscopical appearance it appears to be a case of osteomalacia occurring in a single bone of an

[16] Text book of Pathology, vol. ii., part ii., p. 837.

[17] Transactions of the Pathological Society of London, vol. xxxviii., p. 266.

old man" (the patient was 86 years of age). "On first examining the case it seemed to be one of senile atrophy with curvature." Now this specimen is preserved in the Hunterian Museum (No. 1241, E.), and I have to thank the Council of the Royal College of Surgeons of England for permission to reproduce a photograph of it (see Fig. 4). It is

FIG. 4.



Degenerative hyperplasia of bone and marrow. Section of humerus (on the right) showing changes characteristic of both osteitis deformans and osteomalacia compared with section of healthy humerus (on the left).

put on the same shelf with specimens of osteitis deformans. In the description of it, which appears in the catalogue over the names of Mr. Lunn and Mr. Shattock, it is said: "This specimen appears to be allied to cases of osteitis deformans affecting only one bone." It will be noticed that there is very little thickening except at the curve, but the bone has the coarse gritty look of the bone of osteitis deformans, while, on the other hand, there is an aggressive growth of the marrow causing absorption of the cancellous tissue at the upper end. The appearance of this specimen as a whole is certainly not that which is characteristic of osteitis deformans, and neither does it much resemble that which is ordinarily seen in osteomalacia, but it is equally true that in just those respects in which it differs from one disease it approaches the other in character. A better example of mixed osteitis deformans and osteomalacia it would be difficult to imagine. The specimen is such a good one that I was very rightly not permitted to obtain a piece for further microscopical examination. But I think there can be very little doubt that it is an example of a mixture of osteitis deformans and osteomalacia.

When the membrane bones of the skull are affected in osteomalacia they may closely resemble the appearance which is produced by osteitis deformans. This is well shown in a specimen of osteomalacia of Dr. J. F. Goodhart's which is preserved in Guy's Hospital Museum. The calvarium in this case is coarse, granular, devoid of diploë, and deeply scored by the trenches which have been made by the blood-vessels. The sutures are obliterated and were the bone only a little thicker and more compact it could not be distinguished from the skullcap of osteitis deformans.

These are instances of the conjunction of the two diseases. There are other specimens in the London museums which appear to show a similar mixture.

4. Both diseases are allied to inflammation. Both may apparently start as the result of injury, such as a kick on the shin. In osteitis deformans especially the anatomical changes are remarkably like those met with in inflammation, and where the disease is confined to one bone it may be very difficult, or even impossible, to distinguish it from a diffuse osteitis and periostitis due to syphilis, or, possibly, to injury. But as a rule the wide and regular distribution of the disease in osteitis deformans, the progress from bone to bone and from one part of the body to another, the absence of definite cause, the absence of fever, the selection of a special age for its occurrence, the tendency to heredity, the progressive but interrupted course, and the uselessness of the iodides and of surgical treatment suffice to distinguish between them. Lastly, and of most importance, there is one fact which by itself is sufficient to distinguish between the two, and that is the absence of motive. Inflammation must in all cases have some cause, for in this is the essence of an inflammation. Inflammation is the manifestation of the resistance of the organism to injury. Yet no one has found any fungus or other foreign body to account for osteitis deformans, and from what we know of the disease it is most unlikely that such will ever be discovered.

What has been said of osteitis deformans may also be said in effect of osteomalacia. It, too, is like an inflammation, but is in some respects very different and falls short also in the one essential of motive. It may be started by inflammation and may become the seat of inflammation, but is yet not in itself inflammation.

5. Both are allied to, and may become the seat of, tumours. Perhaps no diseases are so difficult to distinguish from one another as osteomalacia and some tumours of bone marrow. Indeed, in some instances of widely disseminated cancer of the marrow it may be impossible to say during life whether the primary disease is an endosteal sarcoma or whether it is due to osteomalacia. Their origin, history, symptoms, and course may be almost identical. Sarcomatous marrow may also closely resemble the marrow of osteomalacia in structure. In fact, healthy red marrow is so like sarcoma tissue that a widespread degeneration of red marrow into round-celled sarcomata does not leave much room for such an intermediate stage as that of osteomalacia. There can be no wonder that the two are occasionally mistaken for one another. The same happens sometimes with the corresponding diseases of other lymphoid structures, such as the lymphatic glands. It may be impossible to say in a given case whether the disease is Hodgkin's disease or a sarcomatous growth. A localised idiopathic swelling of lymphatic glands under a sterno-mastoid muscle may with confidence be regarded as a sarcoma (potato sarcoma of Mr. Hutchinson), while an idiopathic swelling of numbers of lymphatic glands in various parts of the body is as certainly due to lymphadenoma; but intermediate cases occur which cannot be positively called either the one or the other. In the same way, while ordinary cases of osteomalacia are unmistakeable, some of the reported cases of widespread sarcomatosis of bone marrow are remarkably like those of osteomalacia. Indeed, it is not easy to see how a generalised sarcomatosis of marrow, and of marrow only, can take place unless there is some alteration in this tissue, such as would be caused by osteomalacia, to predispose to it.

There is every reason to believe that the hyperplasia of osteomalacia may form a breeding-ground for new growths secondarily, as the expression of a further loss of cell-control, in the same way that the goitrous thyroid gland, the fibrous and degenerated breast, the tongue of ichthyosis linguæ, and, in rare cases, the liver of hepatic cirrhosis, may severally become the seat of malignant disease. It seems certain that this is what also takes place in osteitis deformans, for the bones in that disease are peculiarly liable to become the seat of cancerous tumours. This is in part to be explained on the ground that the tissues in general become more liable to this extreme form of degeneration as they increase in age. But in addition to this there is also an undoubted special proclivity of the hyperplastic bone

itself. It has already advanced to a half-way stage and the final descent into cancer becomes, therefore, so much the more easy.

The myelomata and sarcomata occur more frequently than the carcinomata, because these growths are more nearly related to skeletal tissue. The myelomata seem to have the same relation to these hyperplasias of bone and marrow that the fibromata have to ordinary fibrous hyperplasias, such as those of the hands in macrodactyly and of the thyroid gland in goitre. They appear to be manifestations of degeneration in a more localised and concentrated form. Connecting links between the myelomata and osteomalacia are not infrequent. Myelomata and osteomalacia may also occur together. Of this mixture a good instance is described by Hirschberg[19] in the case of a man, aged 38 years, who had had osteomalacia for at least four years. After his death numerous cysts were found scattered through the substance of the long bones and small myelomata were also present in the substance of one tibia. Another case is described by Mr. Butlin[19] of a man who was affected with three small myeloid tumours, two being in the jaw and one in a rib, and who ultimately died from exhaustion produced by osteomalacia. An examination of some of the specimens of osteomalacia in our museums would, if one may judge from their naked-eye appearances, almost certainly show that this conjunction is by no means infrequent. The occasional occurrence of multiple myelomata is also suggestive of the presence of some generalised bone dyscrasia which predisposes to tumour formation. Nothing would be so likely to form such a breeding-ground for tumours as hyperplasia of a degenerative character, however slight it might be in extent. Myelomata also occur with osteitis deformans. Thus, Mr. B. Pitts and Mr. S. G. Shattock[20] give details of a case under Mr. A. O. Mackellar's care in which a growth having all the characters of myeloid disease occurred in a tibia affected with osteitis deformans. Other cases might be quoted. It is not improbable that some of the heterologous tumours which are occasionally found in cases of osteitis deformans are not in reality secondary to the disease, but occur only in association with it as the expression of a common morbid tendency. An instructive case which appears to support this view is reported by Mr. C. E. Richmond.[21] Spontaneous fracture of a femur had occurred in a patient who was affected with scirrhus of the breast and numerous growths which appeared to be secondary to it. On post-mortem examination cancers were found in the iliac crests and elsewhere. A section of one femur showed that that bone was not the seat of cancer but that it had undergone degenerative changes characteristic of osteitis deformans. Here it seems probable that the malignant disease and the osteitis deformans were not immediately connected, but were the associated outcome of some dyscrasia which was common to both.

6. The two diseases are prone to be associated with congenital and other disorders of growth. Dr. Goodhart has described a case of osteitis deformans occurring in association with lymphadenoma.[22] The patient was a man aged 65 years at the time of death. He was greatly emaciated. There were "many fleshy tubera apparently of a cancerous nature in the loin, and several firm, fleshy, cancer-like glands in the mediastinum and abdomen. One or two small nodules of growth in the pleura." The spleen was full of large circumscribed yellow masses and presented the typical appearance of a hardbake spleen of Hodgkin's disease. Dr. Goodhart was of opinion that these nodules and masses of growth were of a lymphomatous nature and that they were certainly not sarcomatous. He considered the case to be an example of the "interesting association of Hodgkin's disease of the spleen with osteitis deformans." There is also an instance reported of the occurrence of osteomalacia and lymphadenoma in the same person. This case was described in 1861 by Professor Perrin,[23] who calls it a general hypertrophy of the "whole of the ganglionic lymphatic system" with softening of the tissue of the bones. The age of the patient was 68 years. His disease began with swelling of the axillary glands seven years before. The bones became unduly brittle (there were five fractures) and were so soft that they could be cut with a knife. As nothing is said of the presence of heterologous tumours and the glandular enlargement was widespread there is every reason to believe that the bone softening was due to true osteomalacia and that the glandular swelling was also primary.

In glancing over the reports of cases of osteitis deformans again and again it is seen to be allied with some other degenerative growth disorder, either in the same individual or in some other member of the same family. Bright's disease, imbecility, optic neuritis or atrophy, choroiditis, retinal hæmorrhages, goitre, emphysema, carcinoma, sarcoma, molluscous outgrowths, and subcutaneous fatty and cartilaginous tumours are all mentioned in different cases. Special attention is called by some writers to certain of these associations, such as that with malignant tumours, with bulbar paralysis, or with degeneration of the posterior columns of the spinal cord. These degenerative disorders seem to occur far more often in association with osteitis deformans than they do among those of the same age who are not affected with this disease. The same may be said of osteomalacia. A good instance of its association with different degenerative disorders is published by Dr. George Dock[24] who, in describing the osteomalacia of a woman, aged 24 years, says that her father had had syphilis; the mother possessed a goitre as large as a man's head and had suffered from "rheumatic" pains of the limbs while she was carrying her first child (suggesting possible osteomalacia). A brother had a congenital deformity of the right thumb, while the patient herself had a goitre, a cartilaginous tumour of the right femur, and was found after death to be affected with fibrous degeneration of the spleen, the kidneys, and the ovaries. In the reports of other cases we find cleft palate, goitre, exophthalmic goitre, cataract, chronic Bright's disease, hydromyelus, and syringomyelus. Such diseases are not infrequent, but the most common of all are degenerative affections of the central nervous system. These are so common as to lead to the belief that osteomalacia may be directly produced by some trophic disturbance originating in the brain. It is possible that the general defect of nutrition which characterises some forms of insanity may predispose to osteomalacia or other growth disorders, but there does not seem to be any other relation between them beyond that of the association of allied diseases. They seem to be related rather as brothers and sisters than as parents and offspring.

7. Both diseases show evidences of hereditary transmission. Although the early forms of bone metaplasia (osteopsathyrosis) are often hereditary, among the few cases which I have been able to find the influence of heredity is apparently more often shown in osteitis deformans than in osteomalacia. In neither can the evidence of heredity be termed convincing, though it is more than suggestive. There appears to be no example of the detailed description of two cases from the same family, such as is needed to prove satisfactorily the occurrence of heredity.

In Mr. Clinton Dent's case of osteomalacia,[25] commencing in a male, aged four months, which has already been referred to as an instance of degenerative hypoplasia of bone, there are indications of some hereditary tendency to the complaint. "The parents were healthy but a sister had curvature of the spine; one cousin suffered from the same condition as the patient, another had scoliosis, and a third cleft palate." Here we have not only the statement of family heredity but also evidences of association with an hereditary deformity, constituting indirect heredity.

In an instance given by Ekmann[26] the disease began in a great-grandfather whose limbs were so deformed that he could not walk. Children of the succeeding generation were affected with deformity and softening of the bones, and of the next two generations with bending and fractures. Although there are points about these cases which are greatly in favour of their being examples of osteopsathyrosis, yet it is right to say that Ziemssen is of opinion that they may be due to rickets.

In the report of a case of osteitis deformans by Dr. Stephen Mackenzie[27] it is stated that "the patient was one of twins; his twin brother was imbecile and died in early life in an asylum. Dr. Robinson (who attended him at the time of death) elicited the important information that an

[19] Centralblatt für Chirurgie, No. 46.
[20] Transactions of the Pathological Society of London, vol. xxxi., p. 277.
[21] Ibid., vol. xxxvi., p. 184.
[22] Manchester Pathological Society, Feb. 13th, 1885.
[23] Transactions of the Pathological Society of London, vol. xxxix., p. 282.
[24] Bulletin de la Société Anatomique, 1861, 2 S., p. 247.
[25] American Journal of the Medical Sciences, 1895, vol. cx., No. 5, p. 499.
[26] Loc. cit.
[27] Dissertation, Upsala, 1763 (unverified).
[28] Illustrated Medical News, Sept. 24th, 1853, p. 77.

elder brother died a few years before the patient, at the age of 52, crippled by a deformity of his lower limbs. The course of his illness resembled that of the present case and he was believed by his family to have the same disease."

Another instance is given by Mr. Lunn.[28] The patient had a brother who was said to have died from cancer, and another brother, aged 68 years, who was examined by Mr. Lunn. Mr. Lunn says: "He tells me that he has noticed his own head getting larger and his hat seems too tight for his head. I find both femora enlarged in their lower halves and the right clavicle is decidedly larger than the left." Mr. Bryant[29] says that one of the five cases originally published by Sir James Paget had been that of a patient of his own and that he had the opportunity of following out the case to the end. He survived the publication of his case for 10 or 12 years. Two brothers who are still living are beginning to show signs of the same disease. Of this family these were the only three members.

8. Both diseases have their physiological bases in certain changes of normal growth. These changes are chiefly of two kinds, according to whether they are produced by sex or by age.

(*a*) Changes produced by sex.—Osteomalacia is, as a rule, disease of women and osteitis deformans is a disease of men. This is best explained on the ground that they are vices of growth and are therefore more liable to select those parts in which normal growth is most vigorous. Women are of the more passive or "lymphatic" temperament. The tendency of their tissues is rather towards the formation of fat and of lymphatic tissue than of muscle and bone. It is probable that the lymphoid tissue of the bone marrow is relatively of better growth in women than in men; it is also more subject to growth disturbance. The healthy rise and fall of nutrition which takes place periodically or at uncertain intervals renders it more liable to that loss of equilibrium which constitutes disease. On the other hand, there can be no doubt that the hard tissue of the skeleton of a woman is relatively of inferior growth; her bones are shorter, weaker, and slighter than are those of a man. Hence it is but to be expected that women should be more liable to false hypertrophy of the marrow and men of the hard substance of their bones. All this indicates that the respective pathological conditions have in each case a physiological antecedent and that this varies with the sex. This connexion between the sexual organs and the skeleton is so important in its bearing on the pathology of osteomalacia that it is necessary to deal with it more fully. It is shown under natural conditions as follows. 1. The growth of the sexual organs at puberty is closely associated with the growth of osseous tissue. The change of life which takes place at this age is almost as much one of the skeleton as of the reproductive organs. It is true that there is at the same time increased activity of growth of the soft parts, but this is slower than the growth of the skeleton and appears to be secondary to it as the result of physiological adaptation. The youth of 16 years of age is, as a rule, obviously more bony than the young man of 20, but it is not until the age of 25 years or thereabouts is reached that the muscles attain their full development and the soft parts reach to the standard of the skeleton. 2. A connexion between these organs is also to be observed during the decline of life, especially in women. The menopause corresponds in point of time with the period of physiological degeneration of the marrow. 3. It has been noticed that the bones and red marrow become more vascular during pregnancy, while the marrow is increased in amount. After pregnancy is over they return to the ordinary state.[30] This association is still more evident in certain abnormal conditions. 4. Premature sexual development is prone to bring with it corresponding changes in the bones. Thus a girl in whom menstruation has commenced prematurely may rapidly acquire the figure, and almost the height, of the mature woman. In a case of this kind I have observed that the ossification of a child of three years, shown in a skiagram of the hand and adjacent part of the forearm, corresponded with that of a normal child of 12 years. Similar changes may take place in the male. 5. On the other hand, absence of sexual organs in the young male determines a condition of bone growth which approaches that of the female; and absence of ovaries in the female is associated with a condition which approximates to that of a child. In all these instances it is evident that there is close relation between the bones and the sexual organs, though it is shown in different way in different cases. 6. Of the same significance is the fact that the bones of the female which are involved first and most frequently in osteomalacia are the pelvic bones, whereas in the male there appears to be no such selection, these bones not having the same sexual significance that they have in the female.

This connexion between bone and sexual organs is quite sufficient to account for the relation of osteomalacia to the functions of the ovaries without seeking for any other cause. The process which gives rise to degenerative hyperplasia is essentially a growth excess. It is a hypertrophy affecting a part which is undergoing degeneration and leads in consequence to overgrowth, but not to increase of function. Anything therefore which will tend to promote the activity of the red marrow will favour the onset and progress of the disease. In healthy pregnancy there is a general rise of nutrition, in which the bones share. This is the time when osteomalacia is most likely to appear, and the ossa innominata of parturient women, inasmuch as they are most active at this time, are the bones most likely to be affected first. On the other hand, there is, as a rule, a subsidence of activity during the period which immediately follows childbirth, and this is the period during which osteomalacia usually abates. Similar, though less marked, fluctuations are often produced by menstruation, which in some respects is a miniature childbirth. All these facts tend to the conclusion that whatever excites the activity of the red marrow promotes the disease, and that whatever depresses the function of the red marrow tends to subdue the disease. At the same time it is most improbable that osteomalacia is the direct result of increased nutrition. It is far more likely that owing to premature degeneration of the marrow, or to some general depression of vitality, it is unable to react to the calls which are made upon it during pregnancy, and the attempt to do so results, not in true hypertrophy, but in the spurious hypertrophy of osteomalacia. Thus, while it may be true that undue accesses of general nutrition precipitate the onset of the disease while the return to equilibrium improves it, the first cause may be traced to depressing influences alone. It is on these lines that we must look for the explanation of the immense improvement which so often takes place after the removal of the ovaries in cases of osteomalacia. There is no occasion whatever to look for some chemical solvent, some peculiarity in ovarian structure, or for fungi as an explanation of what is so amply accounted for. It is most improbable that a disease should be so strikingly influenced by such a physiological catastrophe as deprivation of the ovaries unless the disease and the catastrophe were intimately bound up together. In other words, the nature of both cause and effect plainly indicates that in *both* cases there is some very direct interference with physiological processes. Nothing is better calculated to show, on the one hand, that osteomalacia is an affection of growth and, on the other hand, that it is brought about by some influence which is internal, primary, or essential and is not dependent upon any outside cause. Osteitis deformans is probably not obviously affected by these sexual changes, partly because of the greater stability of bone as compared with bone marrow, and partly because it ordinarily appears at an age when the sexual organs are extinct.

(*b*) Changes produced by age.—The changes which take place both in osteomalacia and osteitis deformans are in many respects much like those which are met with in the marrow and bone of the aged. But the resemblance is one of kind rather than of degree. It is, in fact, so grossly exaggerated as to be a caricature rather than a resemblance. It is such as we may imagine would result were senile degeneration to become an active instead of remaining a passive process. In the natural course of events the red marrow undergoes fatty degeneration into yellow marrow and so it remains or becomes gradually absorbed. But in osteomalacia degeneration takes place far more rapidly and is met by wild and misdirected attempts at repair. The new material which is so lavishly expended is either incapable of transformation into proper red marrow or itself undergoes degeneration and so does but add to the mischief. The process is suggestive of a senile degeneration taking place in one organ, while the rest of the body is still vigorous and in a condition to resent a premature decay of part of its community. The changes which take place in health are retrogressive, whereas in osteomalacia they are also progressive. They are retrogressive in quality and progressive in quantity.

[28] Transactions of the Clinical Society of London, vol. xviii., p. 271.
[29] THE LANCET, May 31st, 1890, p. 1182.
[30] Hanau: Festschrift der Medicin, 1892, No. 7.

Much the same may be said of osteitis deformans. Professor Sir G. M. Humphry has taught us that senile changes in bone may be expressed by overgrowth as well as by atrophy. The porous bone of osteitis deformans is, it is true, very different from the dense layers of bone which are sometimes laid down in the calvarium in healthy old age. But it is not difficult to imagine that if to a deposit of fresh bone and to normal atrophy there be added the active process of interstitial embryonic cell-growth all the changes of osteitis deformans may be accounted for. This cell-growth has the same effect that yeast has upon dough: it makes the bone lighter, coarser, and bulkier. Osteitis deformans is like a redundant, senile osteoporosis. The grosser appearances of osteitis deformans are also those of exaggerated old age. The bent back, drooping figure, and bowed head of a patient affected with this disease are strikingly senile, and so are the shuffling gait and that loss of vigour and elasticity of carriage which is so characteristic of the disease. Finally, we have the increased liability to malignant degeneration which has already been commented upon.

CONCLUSION.

Enough has been said to show that the four primary growth diseases—hypoplasia, hypertrophy, degenerative hypoplasia, and degenerative hyperplasia—are all represented in the skeleton. They form two divisions of which the one—hypoplasia and hypertrophy—is distinguished by mere defect or excess of normal growth; while the other, in which are comprised the two degenerative diseases, shows all those broad clinical and anatomical features which in the first part of this article were seen to be characteristic of the degenerative diseases of growth, whatever the tissue may be that they effect. And as degenerative hypoplasia of the skeleton is seen to run into degenerative hyperplasia by imperceptible gradations, each being distinguished from the other by characters imprinted by age alone, so degenerative hyperplasia is subdivided into two diseases according to tissue. If it affects the hard substance of the skeleton especially it is called osteitis deformans; if the soft substance it is called osteomalacia. As a rule these two diseases are well defined, though in all cases both the clinical and material characters of the one can be traced in the other. The differences between them are in the main due to differences in tissue, function, sex, and age alone. They are due to variations of the part affected and not of the affection itself.

What has been said of the skeleton and its growth diseases may also be said in effect of all other tissues and their growth diseases. All are liable to the same four kinds of disorders and all are affected in the same way, varying only to the extent that one tissue differs from another tissue, one time of life from another time of life, one function from another function, and one sex from the other sex.

Reading.

A CASE OF SYPHILITIC FIBRO-SPONGIOID OSTEITIS.

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ALTHOUGH Wegner, Parrot, and Barlow have established the fact that in cases of inherited syphilis the bones are very frequently affected, it is remarkable how seldom such conditions are recorded in this country. The syphilitic pseudo-paralysis consequent upon epiphysitis is occasionally seen in the out-patient rooms of hospitals, but those forms of disease which Parrot has classed under the generic name "osteophytic" seem to be rarely observed. Possibly this may be due to the fact that the less marked cases never apply for treatment, whilst in others bending of the bones and other changes produce an appearance very similar to that of rickets, for which the disease is consequently mistaken. The case which I here record was sent into the hospital as rickets with a view to osteotomy.

A boy, aged 14 years, was admitted into the Bradford Union Hospital on Sept. 8th, 1899, with deformity of the legs. His family history was as follows. His mother had been twice married, and by her first husband she had had one daughter who was healthy and who was now grown up. Her second husband was a steady and temperate man but was very delicate. By him she had had five children, of whom the patient was the eldest. The second and third children died in infancy and the fourth and fifth were stillborn. The mother stated that the patient had snuffles very badly as an infant, that he was a very sickly child, and that he did not walk until he was five years old. He had had no rash at any time except measles. She noticed bending of the legs about 18 months after he began to walk. As regards his condition on admission to the hospital the patient was a sleepy-looking boy and obviously was suffering from adenoids. He walked with a curious gait as if his legs were too heavy for him. He complained of aching pain in the legs at night, especially in the right leg. There was marked asymmetry of the skull, the left parietal and frontal region appearing to be flattened, whilst on the right side a large boss on the frontal bone made the temple singularly prominent. The skull was of the dolichocephalic type. The bridge of the nose was slightly flattened, whilst the malar bones felt more massive than normal. The teeth were very irregular and several were ill-developed. The incisors were tapering and pointed, but there was no central notch. The arch of the palate was excessively high and narrow. The lower jaw was greatly thickened, especially on the left side, where the enlargement could be seen on the face. The thickening of the bone was irregular, so that the surface felt smoothly undulating. On the right side there were three distinct bosses, but on the left the greater degree of thickening was nearly uniform from the angle of the jaw to the symphysis. The thyroid gland was large, the outlines being quite evident to the eye. Both clavicles were much thickened in their inner half, especially the right, the enlargement of the latter being distinctly visible in spite of the boy being fairly fat. The right humerus was irregularly thickened in its lower third, but the left was normal. There was no rickety enlargement at the wrists. The hands and nails were normal. The chest was well developed and was of good proportions. There was no beading of the ribs or

From a photograph showing enlargement and curvature of the tibiæ, especially of middle segment.

any sign of rickets. The body generally was well nourished. The spine was normal, as also were the pelvis and femora. Both tibiæ were greatly enlarged and appeared to be much elongated in proportion to the rest of the limb. The right tibia was from half an inch to three-quarters of an inch longer than the left. They both presented an anterior convex curve in the middle two-fourths. The lower fourth was normal in shape. These bones, whilst they were generally enlarged to a very marked degree, had in addition irregular bossy swellings on their surface. These bosses were not prominent but were sufficiently marked to give the surface of the bone a smoothly undulating character. A quantity of softer tissue surrounding the bone and filling up the interosseous space was also felt, as if there were great thickening of the periosteum. The cutaneous veins were large and prominent. There was slight tenderness on pressure, especially of the right leg, and the boy flinched when the limb was grasped firmly. To summarise, therefore, there had been osteitis in the lower jaw, in the clavicles, in the right humerus, and in both tibiæ. There was asymmetry of the skull with thickening of the right frontal bone and possibly some slight thickening of the malar bones.

Parrot describes two osteophytic forms of bone affection in congenital syphilis—viz., the osteoid form and the fibro-spongioid or rachitic form. The osteoid form may develop at any period of childhood and may possibly even be prenatal. It consists of osteoid growths of a pinkish colour with trabeculæ arranged perpendicularly to the surface of the bone. The tissue is more brittle than normal bone and contains large quantities of lime salts. The trabeculæ are separated from each other by medullary tissue. The fibro-spongioid variety, on the other hand, never appears before the fifth month of life. It begins as a sub-periosteal growth of yellowish pearly fibroid material over which the periosteum is much thickened and closely adherent to it. It may attain as much as half an inch in thickness and is very vascular. There is always a distinct line of demarcation between the new tissue and the bone beneath. The bones most commonly affected are the humerus at its lower end, the ulna, the femur, and the tibia. Although two distinct forms are thus described by Parrot, both are usually present together in varying degree, the osteoid tissue being covered by a layer of the fibro-spongioid material. In the case under consideration there seems to be an arrangement of this kind, the enlarged bone with its smooth nodes feeling as if it were clothed with a softer material of considerable thickness. The abnormal vascularity shown by the enlarged cutaneous veins also suggests this view.

The illustration shows very well the enlargement of the limbs and the degree of bending. It is worthy of note that the convex curve of the tibiæ occupies a different position to that commonly seen in rickets, being confined to the middle segment rather than the lower segment of the bone—a point of some practical importance in the differential diagnosis in a less marked case. This deformity was called attention to by Fournier, who described the curve of the bones as "sabre-shaped." Profile skiagrams of the tibia show the great thickening and the curve of the bone, whilst one of both bones taken from the anterior aspect delineates the osteoid node formation at some points.

Clinically speaking the most striking feature in the case is the marked clumsiness of the lower limbs. The patient walks as if he had heavy weights attached to his feet. The legs appear to be too long below the knee so that in bringing the feet forward he has to trail them on the ground. The family history is peculiar in that it is a typical syphilitic one in reversed order, but in spite of the absence of a definite proof of inherited disease I think no one would doubt the nature of the case for one moment.

Parrot[1] has fully described the osseous lesions occurring in congenital syphilis and in 1879 he gave an address on the subject to the Pathological Society of London and exhibited a large number of specimens. The interest aroused by his investigations seems to have chiefly centred on cranio-tabes and the conditions which give rise to the "natiform skull." Beyond Parrot's descriptions little seems to have been recorded, and I have been unable to find any account in English literature of such a pronounced type of the disease as in the case here related. Moreover, so far as I can ascertain, there is no report of any case in which the lower jaw has been involved. Affection of the clavicles has been observed in rare instances, but as a rule the lesions have been confined to the bones of the leg and the humerus. There can, I think, be little doubt that the bone lesions in inherited syphilis very frequently escape observation, otherwise it is difficult to explain the assertion of various writers that, excepting only the skin, the bones are more commonly affected than any other tissue. Such a marked example as the one here recorded is certainly uncommon, and is worthy of record if only to draw a closer attention to these conditions.

Bradford.

[1] Archives de Physiologie, 1879.

REMARKS ON THE VALUE OF UROTROPIN AND ITS PRACTICAL APPLICATION AS A URINARY ANTISEPTIC.

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THE drug urotropin, or "aminoform" as it is sometimes called, appears hitherto to have attracted little or no general attention, at any rate in this country, but there is little doubt nevertheless that in it we possess a most efficient urinary antiseptic. A clinical experience of over two years in the use of this drug enables me to add my testimony to its efficacy as a urinary antiseptic, but besides this action it has other important therapeutic properties which must not be overlooked, and may briefly be summarised as follows: (1) as a urinary antiseptic; (2) as a uric acid solvent; and (3) as a mild, non-toxic, and therefore harmless diuretic.

As regards the exact mode of its action as an antiseptic there appears to be some difference of opinion, but considering its chemical composition (the drug being a derivative of formic aldehyde and due to the combination of ammonia with formaldehyde) it is more than probable that its action as an antiseptic is, in part at any rate, attributable to the evolution of free formaldehyde in the urine, though all of the drug is probably not decomposed into formaldehyde. This may be readily verified from the fact that the drug itself may be detected in the urine within half an hour of its administration by the addition of a few drops of liquor bromi to it, when a reddish precipitate (urotropin bromide) will appear, showing how rapidly the drug is eliminated from the body in a more or less unaltered form.

It has been stated by one observer (and on this point my own clinical experience agrees with the statement) that one condition necessary for its complete action as a urinary antiseptic is that the urine should, if possible, be acid in reaction. This, coupled with the fact that the drug when heated with mineral acids gives off formaldehyde, tends, I should say, to favour the theory that its antiseptic action is attributable, more or less, to the presence of free formaldehyde. The latter, after administration of the drug per os, has been detected always in the urine, and sometimes in the blood also, which tends to show rather that the change takes place, at any rate in part, before the drug could ever have reached the urinary tract, or come into contact with the urinary secretion. It is just possible, however, that some obscure changes do take place within the body which enable it to exert its action fully as an antiseptic—changes, perhaps not yet thoroughly understood by us and which do not, at any rate, fall within the limits of this paper, but rather within the domain of the chemist.

Firstly, with reference to its action as a urinary antiseptic urotropin can be used with success in any condition involving invasion of the bladder or urinary tract by pathogenic micro-organisms. Foremost amongst these pathological conditions cystitis may be reckoned, whether primary or secondary to enlarged prostate or vesical calculus, &c. All of these conditions directly render the urine septic, which under the circumstances, moreover, acts as a most efficient medium for the development of these pathogenic micro-organisms once infection has taken place. In all such cases this drug usually gives speedy relief. Under this head I may mention its use as a preliminary to operations connected with the bladder or urethra, but more especially with reference to litholopaxy. In this case I have made it more or less a routine in my practice to administer the drug a day

or two previously to operation, when its speedy action, especially in India, is a decided benefit to patients who cannot, and do not usually like to, stay longer in hospital than necessary in order to render the urine as aseptic as possible, as there is usually a certain amount of cystitis present in most cases of vesical calculus before operation. I have good reason to believe that in one case at least upon which I operated—one of vesical calculus of large dimensions associated with enlarged prostate—in which there was marked concomitant cystitis, the patient's early and complete recovery was directly attributable to the preliminary use of the drug in this manner. Its employment possibly prevented the further development of septic micro-organisms within the bladder and thereby lessened the risk of any of these travelling backwards up the ureters and ultimately finding their way to the kidneys and setting up septic infection there, inducing pyelitis, &c., which complications may so easily ensue after such operations. Further, under this head I may also mention the important use that this drug may be put to in rendering aseptic the urine of patients suffering from enteric fever or other diseases in which it is known that pathogenic micro-organisms are eliminated from the body by this channel. There is little doubt that this occurs in diseases other than enteric fever; for instance, it is known that the bacterium coli commune is frequently found in the urine, and when present there plays a prominent part in the production of cystitis, possibly in the course of its elimination from the body in this way. It is now a well-established fact that the urine of patients suffering from enteric fever, more especially after the second week of the disease and during convalescence, contains large numbers of the bacillus typhosus. It is therefore important thoroughly to disinfect the liquid excreta of such patients as well as their fæcal evacuations. The use of urotropin in such cases should prove invaluable in preventing the dissemination of enteric fever by this important, and, I fear, much overlooked, channel of infection. It is obvious that, if possible, the urine should be disinfected before its evacuation from the bladder, rather than that this process should be left till afterwards, possibly to be forgotten altogether. This point is of very great importance in India and in tropical countries, where the means employed for the disposal of excreta are usually some form of dry earth system. That this is not always under the strictest supervision must be within the cognisance of those medical men who have practised in India, where liquid excreta are often carelessly disposed of by being thrown broadcast over the surface of the soil without previous disinfection. The risk is undoubtedly increased in the case of enteric fever affecting native patients, whose ideas of sanitation as well as of decency are usually very crude, and who, as a consequence, micturate as well as defecate indiscriminately over the surface soil, anywhere and everywhere! It is easy to conceive that when the soil is dry, and hot winds blow, or a dust-storm occurs, that the bacilli as well as the spores of pathogenic microbes (where such occur, which, however, is not the case, of course, with the bacillus typhosus) are carried far and wide, and that they eventually find their way into some well or other source of human food or drink supply with disastrous results. In India, it may be remarked, wells are usually of the open, and therefore unprotected, kind. There is little doubt in my mind that the subject of the thorough disinfection of the urine of patients suffering from enteric fever, previously to its final disposal, has not hitherto generally at our hands received the notice that it deserves. At any rate, as regards India in particular, I feel sure that enteric fever is spread more by means of this than by almost any other agency. Moreover, I fancy that when the medical history of the war in South Africa, especially with reference to the prevalence of enteric fever amongst the troops, comes to be written, it will go far to prove the truth of my statement. It was conclusively shown by one observer, as a result of some very interesting experiments made by him to determine the microbic impurity of the air of inhabited dwellings, that the number of microbes present per cubic foot of air was directly in proportion to the amount of dust particles floating about in the air of the space experimented upon, proving that dust is one most important agency by which microbes are disseminated. The particular case to which I refer was that of a school in which large numbers of children were accommodated. If the prevalence of dust everywhere (more especially in tropical countries, where it is blown far and wide by means of hot winds and dust-storms) be taken into account it may be imagined that a very important part is played by it in the dissemination of pathogenic micro-organisms of all kinds. That being so, we cannot exercise too much trouble and care in the execution of measures for the complete and effectual disinfection of all excreta, urinary as well as fæcal. It is in such cases that I see a wide and successful field for the employment of a drug such as urotropin, by means of which we are enabled to check the growth—in fact, to destroy the vitality—of pathogenic micro-organisms of all kinds within the body and before their evacuation, at any rate, by such a channel as the urinary tract. Under the head of a urinary antiseptic also, urotropin should prove of great value in the treatment of gonorrhœa, gleet, &c.—in fact, in any form of urethritis of microbic origin.

Secondly, as regards the action of urotropin as a solvent of uric acid, I have given it with benefit in cases of gout, gravel, and uric acid diathesis, and when combined with salicylic acid in certain cases its action is rendered more potent still. With reference to its action as a solvent of calculi, I fear for obvious reasons that we cannot hope that it will in any way replace surgical interference. I do not doubt, however, owing to its capability of rendering alkaline urine acid, and aided by its antiseptic properties which retard the growth of the bacteria of ammoniacal decomposition, that it may possibly prevent the growth of calculi already in the bladder, by lessening the chance of phosphatic deposits taking place. These phosphatic deposits usually occur sooner or later if left alone. In order to test its value in this matter I made some experiments on a small scale with the drug *in vitro*. Small portions of uric acid were taken from fragments of a calculus removed previously by litholopaxy. These were exposed to the action of a concentrated solution of the drug in pure and freshly sterilised water. The solution was then placed in an incubator and kept at body heat for some days, after which time I could not detect any appreciable loss of weight or substance. This result goes rather to prove that when a calculus, even of uric acid formation, has already formed, we cannot look to much permanent benefit from the exhibition of this drug, though it is just possible that in the presence of normal urine its solvent action would have been more pronounced. Stress of work and my having to proceed on sick furlough, however, prevented me from going more into this matter then, and I fancy that its solvent action on uric acid depends upon other complex chemical changes during its passage through the body, which probably operate upon this product through the medium of the blood and not locally. This is a subject which I hope to go into on my return to India.

Thirdly, with reference to its therapeutic action as a diuretic, an effect which is distinctly beneficial as a secondary help to its antiseptic action, it occasionally causes slight purging. This I noticed particularly in one case of enlarged prostate with irritable bladder in which I gave the drug. The amount given need not exceed 30 grains per diem, and it forms an agreeable, almost tasteless, beverage when taken with a little aerated water. I have myself hitherto seen no untoward results from its administration, but I believe that when the drug has been given in excess it has caused unpleasant symptoms, such as distressing diuresis and pain in the bladder and urethra, accompanied with slight hæmaturia, all of which symptoms, however, have at once ceased on the suspension of the drug or diminution of its dose, no permanent injury resulting.

In conclusion, I feel sure that there is a very wide field of usefulness in the future for the employment of urotropin. It has hardly, I think, received sufficient notice hitherto from the profession in England, but I am confident that its claims will be readily taken into account when it comes to be more generally known. In the hope of such a result I am glad to be able to add my testimony to its worth as a valuable therapeutic agent for combating a troublesome class of cases.

DRAINAGE OF EGG-BUCKLAND.—At Plymouth County Court on June 20th a dairyman claimed £20 from the Plympton Rural District Council for damage to a field at Egg Buckland by reason of defective drainage. Evidence showed that the council without any notice to the plaintiff laid a drain through the field to a cesspit at the top, the result being that the cesspit constantly overflowed. The plaintiff was awarded 12 guineas and costs.

THE EXCRETION OF URINARY WATER AND UREA FROM THE HUMAN BODY, WITH DIMINISHED KIDNEY WEIGHT.[1]

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THE subject matter for this paper was suggested by a study of lectures published in THE LANCET of March 19th and 26th, and of April 2nd, 1898. They were entitled "Observations on the Pathology of the Kidneys," by Dr. John Rose Bradford, Professor Superintendent of the Brown Institution. As there were three patients in my practice with kidney weight diminished it occurred to me that an estimation of the quantity of urine and of its nitrogenous constituents excreted in a period extending over several weeks might be of sufficient interest to make a suitable contribution to this section of the congress; and it would apply to the human individual the principles laid down in the lectures quoted, and also contribute somewhat to our knowledge of the behaviour of the kidney tissue when its total weight relative to the rest of the body is diminished. In two of the cases one kidney—i.e., one half of the total kidney weight—and in the third slightly less than one fourth of the total kidney weight had been removed. The following are the cases.

CASE 1.—The patient was a female, aged 35 years. On March 24th, 1896, the right kidney was removed. On March 16th, 1899, she was confined of a full-sized healthy male child. The estimations were made about three years after the operation and at the time she was suckling her infant. They were begun on April 27th, 1899, and they were continued daily to June 14th, a period of exactly seven weeks.

CASE 2.—The patient was a male, aged 20 years. On May 29th, 1897, slightly less than one half of the right kidney was removed. The estimations, extending over a period of 52 days, were made two years after the operation they were begun on April 24th and ended on June 14th, 1899.

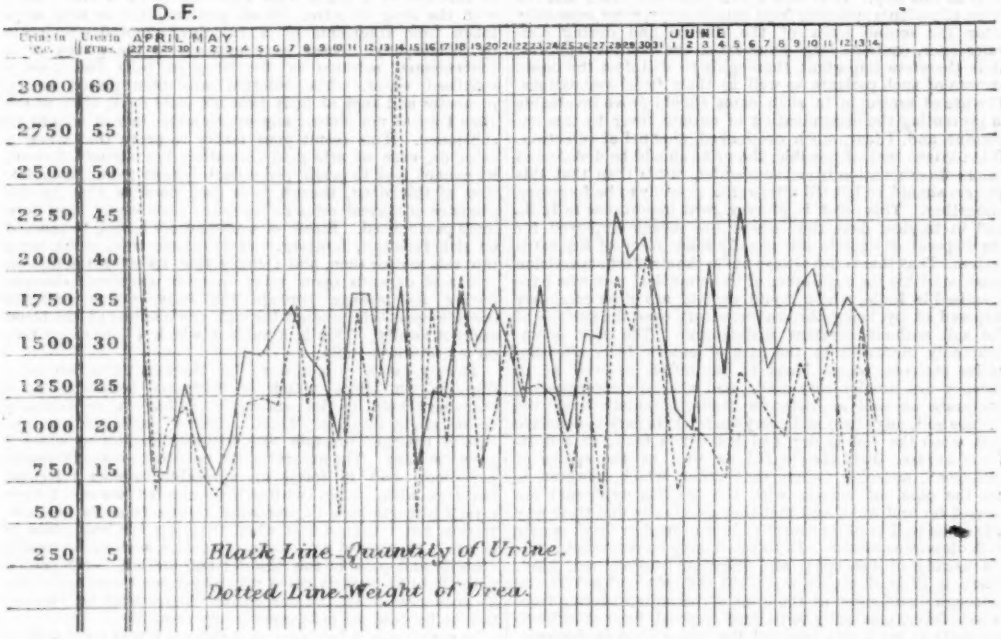
CASE 3.—The patient was a female, aged 56 years. On April 22nd, 1899, the left kidney was removed. The estimations were begun on the day after the operation and they were continued for 53 days or up to June 14th, 1899.

Cases 1 and 2 had time to settle into the normal condition and they exhibit the behaviour of diminished weight of renal tissue in bodies that had assumed a normal standard after complete recovery from the affections for which they were treated. There is one apparent difference in that the first patient suffered from disease and the second met with an accident; this is of no moment as the excreting tissue *in corpore* in each case must have been of a healthy type. Both individuals were upon an ordinary mixed diet and they carried on their customary duties. Case 3 shows the behaviour of one kidney immediately after it had been deprived of the assistance of its fellow, in which slightly more than half the acting structure was capable of performing its function, and further it shows how this single organ was equal to the requirements of the rest of the tissues in passing away the necessary quantity of water, nitrogenous extractives, and other solids after a somewhat serious operation.

In all the three cases the specimens examined were taken from the mixture of the total amount collected daily. The standards of comparison used are those given in Campbell Black's "Urine and Urinary Analysis," edition 1895. Herein the quantity of fluid excreted by the kidneys in 24 hours is given as from 1000 to 1200 cubic centimetres in the female, and from 1400 to 1500 cubic centimetres in the male. The urea elimination is stated at about 25 grammes daily in the female and from 18 to 30 grammes daily in the male. The volumetric analysis of the urea was made by the hypobromite of soda process with the ureometer of Doremus.

That one kidney is capable of doing the scavenging for which two are generally provided has been demonstrated upon many occasions in the after-history of persons from whom one kidney had been excised. The more thoroughly we realise the capacity of a diminished weight of tissue to perform all the particular requisite functions of the body which it was ordained to fulfil, with the more self-satisfaction do we attack and remove a diseased area of this tissue. The experiments in the dog (and they are being found to

CHART SHOWING EXCRETION OF URINE AND UREA IN CASE 1.



[1] A paper read before the Medical Section of the Intercolonial Medical Congress held at Brisbane in September, 1899.

apply to the human individual) have thrown much light on the physiology and pathology of the kidney; with the function of the healthy organ as an excreting tissue in some of its relations this paper is intended to deal.

Professor J. Rose Bradford writes: "An animal (dog) with diminished kidney weight is unable to excrete a concentrated urine ..... the urea is eliminated by an increased flow of water occurring—i.e., an hydruria follows; in this way the larger amount of urea is got rid of without the percentage in the fluid being greater. In a normal animal the urea is got rid of by the urine containing a greater percentage of it."

In Case 1 in the seven weeks during which the daily estimations were made the highest concentration was 3·47 per cent. of urea once, 2·8 per cent. once, and 2·79 per cent. once; the daily average throughout the whole period was 1520·5 cubic centimetres of urine containing 1·6 per cent. of urea; this is comparable to the 2·05 to 2·5 per cent. which is the approximate proportion excreted in the healthy female with two kidneys. The one kidney in this woman is able to excrete urine in all ways similar to that which we find in a normal woman. The highest proportion, 3·47 per cent., is sometimes demanded of the kidneys in the average healthy female with variations in diet, and upon the particular day of this excess there was a relative hydruria, 1875·5 cubic centimetres of urine having been voided. The greatest quantity of fluid that was passed in any one day was on two occasions 2301·7 cubic centimetres with urea 1·89 and 1·19 per cent. respectively. (See table, Case 1, and chart.)

In Case 2 during the 52 days over which the estimations extended the highest concentration was 3·59 per cent. of urea, with an excretion of 937 cubic centimetres of urine. On 15 occasions the proportion was over 2·25 per cent., while for the whole period the average quantities daily were 1167 cubic centimetres of urine and 3·13 per cent. of urea. This would seem to indicate that the kidney

CASE I.

Date.	Amount of urine in cubic centimetres.	Amount of urea in grammes.	Specific gravity of urine.
April 27th	2188	50·9	1031
,, 28th	795	13·6	1015
,, 29th	795	22·2	1024
,, 30th	1309	23·8	1020
May 1st	994	15·8	1018
,, 2nd	767	13·1	1017
,, 3rd	994	15·9	1014
,, 4th	1506	24·0	1014
,, 5th	1449	24·7	1014
,, 6th	1648	23·5	1016
,, 7th	1761	35·1	1022
,, 8th	1477	23·5	1014
,, 9th	1392	33·3	1022
,, 10th	937	19·7	1012
,, 11th	1847	34·7	1019
,, 12th	1847	32·1	1012
,, 13th	1276	32·0	1022
,, 14th	1875	65·2	1026
,, 15th	795	10·4	1011
,, 16th	1250	34·2	1018
,, 17th	1221	19·5	1012
,, 18th	1845	38·0	1022
,, 19th	1534	16·6	1010
,, 20th	1790	23·4	1014
,, 21st	1506	34·3	1022
,, 22nd	1193	25·1	1022
,, 23rd	1876	25·6	1014
,, 24th	1307	24·5	1028
,, 25th	1023	15·1	1022
,, 26th	1591	27·2	1016
,, 27th	1562	12·5	1013
,, 28th	2301	43·3	1020
,, 29th	2046	32·6	1015
,, 30th	2159	41·8	1020
,, 31st	1733	27·7	1015
June 1st	1135	13·6	1012
,, 2nd	1023	20·4	1021
,, 3rd	1903	18·4	1010
,, 4th	1335	14·4	1015
,, 5th	2301	27·5	1010
,, 6th	1818	24·9	1012
,, 7th	1135	21·3	1015
,, 8th	1619	19·4	1011
,, 9th	1876	27·8	1014
,, 10th	1905	22·8	1011
,, 11th	1562	30·1	1023
,, 12th	1761	14·0	1010
,, 13th	1676	32·5	1022
,, 14th	1079	17·2	1015

CASE II.

Date.	Amount of urine in cubic centimetres.	Amount of urea in grammes.	Specific gravity of urine.
April 24th	1138	25·9	1020
,, 25th	1136	20·7	1020
,, 26th	1078	20·9	1023
,, 27th	1136	28·5	1025
,, 28th	852	21·8	1027
,, 29th	1136	23·3	1024
,, 30th	994	23·8	1026
May 1st	1079	20·3	1022
,, 2nd	1221	25·0	1018
,, 3rd	1079	24·6	1022
,, 4th	1136	32·4	1027
,, 5th	852	23·3	1027
,, 6th	1136	25·9	1024
,, 7th	1463	29·2	1020
,, 8th	1079	28·3	1023
,, 9th	1449	33·0	1020
,, 10th	1278	27·6	1020
,, 11th	1136	25·9	1020
,, 12th	1364	24·8	1018
,, 13th	1165	21·2	1020
,, 14th	1648	37·5	1016
,, 15th	1506	34·3	1019
,, 16th	1335	41·1	1024
,, 17th	1221	33·4	1022
,, 18th	994	31·1	1026
,, 19th	909	28·0	1024
,, 20th	1335	24·3	1017
,, 21st	937	33·7	1026
,, 22nd	909	24·8	1024
,, 23rd	795	19·9	1026
,, 24th	1108	18·3	1016
,, 25th	1023	26·8	1022
,, 26th	767	16·6	1018
,, 27th	1108	19·0	1018
,, 28th	1136	33·7	1026
,, 29th	1108	16·4	1016
,, 30th	1079	21·5	1016
,, 31st	1108	18·3	1018
June 1st	1307	19·3	1015
,, 2nd	1278	13·8	1014
,, 3rd	1307	11·9	1010
,, 4th	1364	28·0	1026
,, 5th	1307	17·1	1012
,, 6th	1136	21·3	1020
,, 7th	1108	19·5	1019
,, 8th	1250	26·3	1020
,, 9th	1136	23·2	1020
,, 10th	1591	18·1	1014
,, 11th	1193	32·0	1025
,, 12th	1534	21·0	1015
,, 13th	1079	24·6	1024
,, 14th	1136	31·7	1026

and one half passed away a sufficiency of nitrogenous material but that there was a slight deficiency in the quantity of fluid. That the renal tissue left was capable of passing away more than an average daily amount of urine is evident, as 1506, 1534, 1591, and 1648 cubic centimetres were voided on four of the days. There was no marked hydruria or polyuria. (See table, Case 2.)

In Case 3 in the second and third 24 hours after the operation the highest concentration of the urine was seen, the single kidney excreting a fluid with 4·56 per cent. of urea. Moreover, the largest quantity of urea excreted during any one day was 29·8 grammes, and that in the second 24 hours after the operation with urinary water 653·5 cubic centimetres; in the third diurnal period 28·3 grammes, with 625 cubic centimetres of water; in the following like time 27·5 grammes, with 653 cubic centimetres of water. On the fiftieth, fifty-first, fifty-second, and fifty-third days the quantity of urine voided was respectively 1676, 1562, 1428, and 1335 cubic centimetres, with 0·79, 0·90, 1·02, and 1·49 per cent. of urea. The average for the 53 days was 889 cubic centimetres of urine, with 14·1 grammes of urea, or 1·57 per cent. The quantity of fluid voided steadily increased and towards the end of the estimations there was practically a hydruria but not a polyuria. (See table, Case 3.)

In Case 1 a great variation between the minimum and maximum quantities in both urine and urea is to be seen. Under 800 cubic centimetres of urine were voided on four days, while over 2000 cubic centimetres were passed on five days. During the whole period the average 1520 cubic centimetres per day is well over the quantity voided daily by a healthy woman with two kidneys. Compared with the two other cases the urea variations were remarkable; more than 59 grammes were excreted on two occasions, the highest being 65·2 grammes on the eighteenth day of the estimations. Under 13 grammes were produced three times. These figures show that the single kidney is capable of getting rid of twice as much water and three times as much urea in one day as is the average for two healthy kidneys. The woman was in perfect health on an average mixed diet and suckling a full-sized male child.

In Case 2 the patient with his one and one half kidneys *in situ* the urinary water was under 800 cubic centimetres per day twice and over 1400 cubic centimetres six times. For the whole period the daily average of 1167 cubic centimetres is about equal to what two healthy kidneys should excrete. The urea was below 14 grammes on two days and 33 grammes or over on seven days. Between these two limits the quantities varied considerably. The loss of one-fourth of his kidney weight did not materially alter the excretion of either the fluids or the solids by the renal tissue. The patient was a healthy young male, of average activity, living on a mixed diet. If estimations were made on a like man under similar circumstances, but possessing his full proportion of kidney weight, much the same variations would be found in the daily quantity of fluids and solids passed.

In Case 3 we have a condition like to the dogs of Professor Rose Bradford, as the estimations were begun immediately after the operation. He writes: "All partial nephrectomies, single or double, slight or extensive, increase the amount of urinary water, to different degrees it is true; the amount of urea is not increased by either single partial nephrectomy or by double partial nephrectomy or yet by the removal of one kidney and a portion of the other, provided always that at least one-third of the original total kidney weight be left to the animal." In Case 3 at no time during the first five weeks did the urinary water reach 1200 cubic centimetres in one 24 hours, the nearest to that amount being 1108 cubic centimetres passed on the thirty-fifth day. This does not agree with the hydruria found in the dog. The urea for the first 24 hours stood at the normal healthy average; during the second, third, and fourth daily periods it was about twice the normal amount per ounce of urinary water, but only a little above the total required to be excreted daily by a healthy female with two kidneys. This differs from what happened in Professor Bradford's dogs and shows that immediately after removal of one kidney in the human subject the kidney left *in corpore* is capable of excreting a somewhat concentrated urine. During the sixth and seventh weeks the urinary water voided kept well up to a healthy average, while on the four days of the eighth week the quantity was about 300 cubic centimetres above the average. In these same periods the urea was about one-half of that usually excreted by two healthy kidneys. The table as a whole shows a steady increase in the quantity of urinary water. At first, when this was small in amount, the patient had a low-tension pulse, she was unable to take much fluid wherewith to fill the blood-vessels, and a diminution in the filtering processes followed. After major operations there is usually wasting for the first few days; this is probably accompanied by an over-production of nitrogenous extractives in the tissues and blood, thence moving onwards to excretion through the kidneys. After the fourth day the urea fell to a normal degree and only five times during the subsequent analysis was it up to 19 grammes in the 24 hours. The patient put on flesh and soon regained more than her accustomed vigour.

In the *British Medical Journal* of July 29th, 1899, Dr. W. L. Bell of Lowestoft Hospital, England, reports a case of

CASE III.

Date.	Amount of urine in cubic centimetres.	Amount of urea in grammes.	Specific gravity of urine.
April 23rd	454	10·37	1027
,, 24th	653	29·8	1026
,, 25th	625	28·3	1028
,, 26th	653	27·5	1026
,, 27th	568	18·8	1024
,, 28th	568	18·1	1024
,, 29th	596	20·7	1024
,, 30th	568	16·2	1028
May 1st	566	15·8	1024
,, 2nd	653	19·0	1020
,, 3rd	625	18·1	1022
,, 4th	682	12·4	1015
,, 5th	653	11·1	1016
,, 6th	653	7·7	1011
,, 7th	632	14·3	1018
,, 8th	710	11·3	1014
,, 9th	710	14·9	1018
,, 10th	658	19·3	1018
,, 11th	568	17·5	1020
,, 12th	710	13·7	1016
,, 13th	710	4·9	1010
,, 14th	653	8·9	1014
,, 15th	710	8·1	1010
,, 16th	937	13·3	1012
,, 17th	852	15·5	1016
,, 18th	852	8·7	1014
,, 19th	994	12·5	1012
,, 20th	1023	11·0	1009
,, 21st	852	9·2	1010
,, 22nd	966	10·5	1011
,, 23rd	994	9·0	1014
,, 24th	994	10·7	1014
,, 25th	1079	11·0	1009
,, 26th	1079	12·3	1012
,, 27th	1108	11·3	1014
,, 28th	1136	12·9	1010
,, 29th	1193	16·3	1015
,, 30th	1221	11·1	1011
,, 31st	852	10·2	1013
June 1st	994	13·6	1014
,, 2nd	909	17·1	1017
,, 3rd	1335	19·8	1018
,, 4th	1108	14·5	1016
,, 5th	1136	15·5	1014
,, 6th	966	10·4	1011
,, 7th	795	10·9	1013
,, 8th	1136	10·3	1010
,, 9th	1449	11·5	1010
,, 10th	1278	10·2	1010
,, 11th	1676	13·3	1011
,, 12th	1562	14·2	1012
,, 13th	1420	14·6	1014
,, 14th	1335	19·8	1016

abdominal nephrectomy for renal calculus. At the end of the article he writes: "Estimations of urine.—During the first 24 hours 14 ounces of highly albuminous urine were excreted, but after this it remained free from albumin, and during the second 24 hours there were 15 ounces, next three days 28 ounces each day, after which the amount passed generally varied from 35 to 45 ounces. Careful measurements extended over a period of eight weeks."[2] In further illustration of the cases forming this article a statement of weekly averages of urinary water and urea excreted are here shown.

Weeks.	Case 3.		Case 2.		Case 1.	
	Urine.	Urea.	Urine.	Urea.	Urine.	Urea.
	c.c.	grms.	c.c.	grms.	c.c.	grms.
First	4120	154·1	7473	165 1	7,843	164·4
Second	4404	100·7	7970	180·8	10,173	175·1
Third	4705	96·1	9121	198·0	10,116	218·3
Fourth	5740	77·7	8240 •	226·7	11,054	187·8
Fifth	7075	74·3	6848	159·2	12,418	200·3
Sixth	7844	101·1	8553	129·4	11,423	140·7
Seventh ...	7871	83·5	8724	158·0	11,480	151·0
Eighth ...	5995 4 days	62·0 4 days	3751 3 days	77·3 3 days	—	—
Total ...	47,598 53 days	749 6 53 days	60,684 52 days	1294·9 52 days	74,509 49 days	1237·7 49 days
Average per week.	5943·13	98·2	8132·94	173 9	10,644·19	176·8
Average per day.	898·01	14·1	1167·0	24·9	1520·59	25·25
Average urea in grammes per cubic centimetre.	0·01574 = 1·574%		0·02133 = 2·133%.		0·0166 = 1·66%	
Average specific gravity.	1015·4		1020·6		1016·4	

The following conclusions appear to me to be justified: 1. If one kidney be removed then three years subsequently the healthy kidney *in situ* will excrete more than the average quantity of urinary water produced by two normal kidneys. 2. This same kidney will excrete per cubic centimetre of urine and per diem the average amount of urea that would be produced by two healthy kidneys. 3. If one half of one kidney be removed, then two years afterwards the urine voided will be the same in quantity as if two healthy kidneys were present. 4. The loss of the half of one kidney will cause no increase or diminution in the percentage of total amount of urea excreted. 5. If one kidney be removed then the quantity of urinary water excreted by the other during the seven weeks immediately succeeding the operation will be below the average daily amount. 6. The urea produced by this one kidney will be less than the average proportion usually seen as the result of the work of two healthy kidneys but probably not below the average excreted by two healthy kidneys from an individual recovering from a serious operation.

From the standpoint of the practical surgeon there is one important fact brought prominently forward in Professor Bradford's experiments and lectures. They teach us: first, that in the dog two-thirds of the total kidney weight can be removed with impunity, and the one-third remaining is consistent with the prolonged and healthy existence of the animal; and, secondly, that there is a limit between the one-third and the one-fourth of the total kidney weight beyond which, if excision be practised, the kidney tissue left is not sufficient for the sustaining of life, as the animal will rapidly emaciate and die; not, however, from uræmia, as even with one-tenth of the total kidney weight an hydruria and a polyuria immediately followed. Anyone of us may have the question brought before him in a case of kidney disease or a tumour growth of renal tissue as to how much of the kidney substance may be with safety excised. The general trend of all these observations is in the direction of Professor Rose Bradford's results, that one-third of the total kidney weight in the human being would be as capable of sustaining a prolonged and healthy life as he found to be the case in the dog. For the preparation of the accompanying chart and the working out of the averages and totals my best thanks are due to Dr. F. H. Cox, a graduate of the Sydney University.

Wallsend, New South Wales.

[2] Other references to the subject matters in this paper will be found as follows: THE LANCET, Feb. 15th, 1896, p. 417, Salford Royal Hospital, Nephrectomy, under the care of Mr. Herbert Lund. Brit. Med. Jour., Oct. 17th, 1896, p. 1100, Dr. Oscar Bloch, A Case in which Half the Kidney Invaded by Morbid Growth was Removed, with Remarks on the Conservative Surgery of the Kidney. THE LANCET, Oct. 31st, 1896, p. 1229, A Case of Abdominal Nephrectomy, by Mr. F. C. Wallis, at the Clinical Society of London.

ON THE USE OF MERCURY IN THE TREATMENT OF CARDIAC FAILURE DUE TO ARTERIO-SCLEROSIS.[1]

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THE value of mercury in the treatment of disorders of the circulation was well recognised by the older physicians, but the zeal for its employment was not always according to knowledge. Consequently a generation arose which, following blindly in the footsteps of tradition and not finding their expectations answered, proceeded to ban mercury as a dangerous or useless drug under all circumstances and so impressed the public with this belated sagacity that even the acknowledged charlatan was forced to advertise his wares as free from that deleterious agent. One has only to mention the names of Withering and of Baillie, of Stokes and Graves and Gregory, however, to be certain that, whatever mistakes these distinguished men committed, they were the faults of strength, and that when they spoke positively of beneficial results obtained under certain circumstances they stated facts and opinions which required the respectful if discriminating attention of posterity. Posterity, however, for a time was more discriminating than respectful and it consigned in a great measure both these great authorities and their vaunted remedy to an unmerited oblivion. In the matter of mercury in the treatment of some forms of heart disease it is now beginning to revise its hasty condemnation.

It is not my intention on this occasion to consider the larger question of the use of mercury in the treatment of heart disease, but to limit myself to a consideration of its employment in that form of cardiac failure which is so frequently associated with the arterio-sclerotic changes connected with advancing life, and more particularly when this is coupled with that overwork for a means of livelihood which is the fate of many. I think I can do this most conveniently by quoting a specific instance and making it the peg on which to hang any general remarks I may have to offer.

A man, aged 67 years, an English labourer of the best type, calm, self-respecting, the father of a hard-working family and of good physique but stiff and bowed down with continuous work and advancing age, had been under my observation for about five years in the out-patient department of the Great Northern Central Hospital. He had suffered during that time from a tachycardial form of cardiac arrhythmia with periods of amelioration and comparative sense of well-being, broken by the inevitable relapse into breathlessness, defective sleep, and scanty urination, but never reaching that greater depth of cardiac failure associated with progressive anasarca and effusion into the serous cavities of the body until December, 1899. He then returned as an out-patient, water-logged and with a rapidly sinking heart. I advised him to enter the hospital, and by the courtesy of my colleague, Dr. E. Clifford Beale, he was placed under my care. By an oversight, however, I was not informed of his admission until a fortnight or so after that

[1] A paper read before the Æsculapian Society of London on May 19th, 1900.

event, during which time he was under the care of a house physician.

On admission into the hospital on Dec. 20th the patient's temperature is stated to have been 96° F. and his heart-pulse, so far as it could be counted with the stethoscope, 160, very irregular in force and in rhythm and few beats reaching the wrist. He was somewhat cyanosed and orthopnœic, and had a cough. He had anasarca as high as the waist and on his legs there were several foul sloughing sores. There was no detectable ascites and the urine was very scanty and contained some albumin. A mixture containing 15 minims of tincture of strophanthus, four minims of solution of strychnine, and 10 grains of diuretin was ordered to be taken every four hours. One grain of calomel was likewise prescribed daily, and at bedtime he took 20 grains of bromide of potassium and 20 grains of trional. Saline aperients were likewise administered and the patient was placed on admission diet. Ten days later there was no noteworthy improvement in his condition; the hypnotics were increased in power and tincture of digitalis was prescribed instead of tincture of strophanthus. On Jan. 5th, 1900, fish was added to the dietary and a pill containing two grains of calomel was ordered to be taken at bedtime every night. Finding on the 9th that the condition of the patient continued critical I placed him upon ordinary diet and prescribed three ounces of brandy, to be given in one-ounce doses and the last ounce at bedtime. I discontinued all hypnotics and ordered the pilula diuretica of the hospital pharmacopœia to be administered three times a day. This consists of powder of digitalis, powder of squills, blue pill, and extract of hyoscyamus, of each one grain. On the 16th the patient was still restless at night, but the œdema of his legs had subsided to some extent, and although there was a little recognisable serous effusion in his left chest, and the ratio between his heart and wrist pulse was as 150 to 100, the quantity of his urine had increased and it contained no albumin. By the 19th the ratio of his heart and wrist pulse was as 120 to 66; the impulse of the heart was stronger and its rhythm was regular; the patient slept better and there was less evidence of pleural effusion. The urine within the next few days began to flow more freely until on the 27th it reached a maximum of 110 ounces, and the patient's general condition had improved in every way. On the 31st the diuretic pill was discontinued as the patient's gums had become slightly affected. The urine, however, continued to flow satisfactorily until Feb. 12th, when it had fallen to 36 ounces, and on the next day the diuretic pill was resumed. Three days later it had reached 47 ounces and, with some fluctuation, a maximum of 73 ounces on the 19th. The general state of the patient had meanwhile continued to improve and on the 25th the pill was again omitted, and was resumed on March 3rd because of a fall of the urinary secretion to 15 ounces as nearly as could be calculated. Four days later the quantity had again risen to 50 ounces and the patient's general state was most satisfactory. All anasarca and serous effusion had disappeared, the force and rhythm of his heart had improved, and the discrepancy between the heart beat and the pulse at the wrist had been reduced, at times very greatly, such ratios as 90 to 72, 100 to 84, and 104 to 88 being noted. The patient also ate well, and slept from 7 to 10 out of the 24 hours without any other aid than his nightcap of one ounce of brandy. The diuretic pill was discontinued and again resumed for a few days at a time, and on the 27th the patient was discharged on account of the demand for beds. He was then in every way comfortable, and was free from all the evidences of cardiac failure with which he had been admitted. The heart, however, still manifested its arrhythmical instability and he was advised to rest as much as possible and to live as generously as his family could afford to allow him to do. He returned to my out-patient clinic in May free from œdema or subjective distress, but with increased tachycardial arrhythmia and stated that he could not "get along" without taking a few of his "pills" from time to time.

I have too great a regard for the reputation of mercury as a therapeutic agent in cases such as that just related to claim for it a greater share in the success attending its employment than an impartial review of the circumstances seems to justify. It has been pointed out alike by Baillie, by Stokes, and by others, that it is the combined operation of mercurials and cardiac stimulants which influences for good the majority of cases of cardiac failure such as that described. To these, however, must be added, in the case of persons in the circumstances of my patient, the rest, warmth, food, and general care which they receive on admission to a hospital. Without these influences it may safely be asserted that neither mercury nor digitalis would have had any result in the present instance. These, however, while they enabled the pill to act beneficially did not disprove the fact that there was an efficacy to be expected from the combination which would probably not have been attained by the use of one drug without the other, or, indeed, by the unduly preponderant use of digitalis as compared with the mercurial. For my present purpose it is fortunate that this point was also illustrated in this case. On admission a powerful cardiac stimulant and diuretic was prescribed, together with a grain of calomel separately at bedtime. A fortnight later, progress being unsatisfactory, digitalis was employed instead of strophanthus and an additional grain of calomel was prescribed to be taken at bedtime. It was not, indeed, until more than a fortnight after the simultaneous use of the drugs thrice repeated daily, and after the patient had been placed on full diet and brandy made to take the place of his ordinary hypnotics, that the full effects of the drug were attained and a urinary output which had fallen to 18 ounces and even 15 ounces a day rose to a maximum of 110 ounces. It could not, of course, be maintained at this high figure although such amounts as 93, 75, 81, 85, and 69 ounces were recorded. For it may be noticed in water-logged cardiac cases that when the methods employed begin effectually to squeeze the human sponge a copious drip takes place, but the human body obeys under the circumstances the general law of sponges which once squeezed fairly dry have little more than their normal moisture to part with unless they again become more or less water-logged, as may happen. As Carlyle was fond of remarking, "You cannot get more out of a thing than there is in it." Even under recurrences of anasarca, however, this case shows that a steady recourse to the combined drugs may again be expected to relieve the patient, and, as is stated at the conclusion of the record, the patient himself was so convinced of the value of his pill that he insisted on keeping it within reach. In his case I believe that he was justified in his confidence, although a like touching faith may be frequently observed under circumstances in which a wholesome scepticism would be more in place.

A few remarks may be made upon the possible causes of success in the treatment of the case related and upon the value of the combination employed. In connexion with the first point it is important to note that the kidneys of the patient, although congested, were essentially healthy, as it has been found by those who have used mercury in the treatment of heart disease that chronic renal disease, with the impeded elimination involved, is inimical to a sufficiently prolonged exhibition of the drug to secure beneficial action. In the next place all the agents in the compound pill prescribed were steadily pushed under favourable circumstances as to posture, food, and warmth until a definite result was secured. It is permissible to refer to this point because it is so frequently observed that a rational course of treatment has been conceived and initiated without being pushed home with sufficient persistence and vigour to secure success. In the third place, the patient was either philosophical enough or stupid enough to allow of the mental factor in his case being eliminated and thus prevented from upsetting the balance of his circulation by the intrusion of the emotions. Although the notes taken by the resident physician comprehensively state that while cardiac failure was at it worst the patient was "off his head" (as often happens under similar circumstances), he slept well and long when his anasarcous discomforts and the impediment in his circulation diminished and quite recovered his mental equilibrium. In sleep, while the vessels of the brain diminish in calibre the withdrawal of the psychical sphere from active operation appears to release the general vascular periphery, somatic and visceral, and thus to relieve the labour of the heart which, like the rest of the organism, enters refreshed on waking upon the work thrown upon it during the day.

The last point which may be mentioned as having conduced to the favourable issue of the case is that, although the patient was admitted to hospital on Dec. 20th, 1899, placed upon full diet and given systematic and persistent treatment by the diuretic pill and an allowance of brandy without hypnotics on Jan. 9th, 1900, and was practically convalescent towards the end of the same month, he was not discharged

from hospital until March 29th. In other words, he was two months in hospital under constant observation and with every comfort after convalescence was established. A similar case with equally happy results had been under my care in the hospital a year previously, and although this patient returned to the ward for a short time while the patient whose case I now describe was under treatment there has been no recurrence of his extensive dropsy since his convalescence. He also was kept for a long time in hospital. This patient was as old as the one whose case I now record, and had even harder arteries and a dilated and arrhythmical heart, and the full consolidation of his convalescence appeared to have established a compensation even under these circumstances which had successfully coped with the wear and tear of another year.

As regards the efficacy of mercury administered in the combination indicated and under the circumstances under consideration Sir Thomas Watson,[1] discussing the treatment of "anasarca," remarks: "Sometimes a combination or farrago of diuretic substances proves more efficacious than larger doses of any of the ingredients administered singly and the operation of some of these combinations is undoubtedly quickened or exalted in many instances by the addition of mercury. A fluid drachm of the officinal solution of the bichloride in each dose in a mixture or small quantities of calomel or of blue pill when the medicines are given in a solid form. A very useful pill of this kind, much recommended by the late Dr. Baillie, consists of three or four grains of the pilula hydrargyri, mixed up with one grain of the dried powder of squills, to be given twice or thrice a day. Dr. Baillie states that squills and digitalis are much less effectual by themselves than when combined with mercury." The formula of this pill, which is given in the second and third editions of Dr. George Gregory's "Elements of the Theory and Practice of Physic," is three grains of pilula hydrargyri and one each of powder of squills and of digitalis, to be taken at midday and in the evening. As the formula is not given in the first edition which was published in 1823—the year in which Matthew Baillie died—it is probable that the usual posthumous extension of Gregory's armamentarium took place after the death of his great and good contemporary. But Baillie would have been the first to acknowledge that the principle of the combination of coöperative elements was as old as the world itself, and exemplified by all the healing waters known to bathers and physicians from and prior to the days of the name-father of our society down to those of the last bath-doctor who has lost his mental equilibrium in enthusiastic praises of a new spring. Withering, indeed, writes of the therapeutic relation of squills to digitalis thus: "Next to the lancet, I think nothing lowers the tone of the system more effectually than the squill, and consequently it will always be proper in such cases to use the squill, for if that fail in its desired effect it is one of the best preparations to the adoption of the digitalis."[2] We now know that the active principle of squills acts much in the same manner as that of digitalis and that neither "lowers the tone of the system" except when administered in excessive doses or after too protracted use, but the above quotation shows that Withering's practical sagacity had detected the aid which one at times could lend the other. At page 170 of the same essay a prescription of Withering is given in which two grains of "grey mercury" were combined with 20 of powdered digitalis leaves and divided into 14 pills of which one was to be taken twice a day—evincing, surely, quite a modern timidity of mercury. I have not, however, met with any actual combination of all these ingredients in one pill in Withering's work and we may therefore assume that the attribution of that combination to the clinical acumen of Baillie is correct, but I have not so far met with a note of it in his works, which are well worthy of perusal even to-day. The addition of a grain of hyoscyamus—the "Guy's pill" used at the Great Northern Hospital—was probably not intended by its originator or originators to be other than a corrective to the intestinal effects of the other drugs, but it is just possible that as a drug of the belladonna group it may not be without influence upon the circulation when administered for a length of time. I have, indeed, occasionally used extract of belladonna in the pill instead of hyoscyamus on this principle and especially when there is a bradycardial rather than tachycardial tendency in the arrhythmia so frequently associated with arterio-sclerosis. The beneficial influence of mercury in the combination is, I think, clinically indisputable, but the discussion of the precise manner of its operation might lead to much, and perhaps not very useful, speculation. A fact, however, among the effects of mercurials to which Sir William Broadbent (to whom I attribute a considerable share in the revival of the medical use of mercury) attaches much importance is its lowering the tension of the pulse. How this is brought about—whether by the elimination from the blood of waste material which has a spastic effect upon the arterioles or by direct dilatation of the peripheral vessels in the process of its own elimination—it is not necessary at present to inquire and is very difficult to determine. That the permeability of peripheral vessels by a lessening of their resistance is secured appears to be clinically demonstrable. This being so it is not difficult to imagine, and is indeed permissible to suppose, that the combination of mercury (a peripheral dilatant) with digitalis and squills (which are in part central stimulants as well as peripheral contractors) constitutes it a rationally indicated adjuvant to the action of the latter in cardiac failure due to arterio-sclerosis. Like many other happy therapeutic combinations, however, it was probably at first employed in this connexion empirically, even by men of the calibre of Withering and of Matthew Baillie.

Upper Berkeley-street, W.

[1] Lectures on the Principles and Practice of Physic, vol. ii., p. 597.
[2] An Account of the Foxglove and some of its Medical Uses, 1775, p. 190.

"THE ACTION OF THE WATER OF LLANGAMMARCH WELLS ON URIC ACID."

BY WILLIAM BLACK JONES, M.D., B.S. LOND., D.P.H.,
PHYSICIAN TO THE LLANGAMMARCH WELLS SPA.

IN an article under the above title which appeared in THE LANCET of March 25th, 1899 (p. 830), by Mr. Edward Russell and myself, we recorded observations on two cases, one of uric acid calculus and the other of lithæmia, in both of which the patients had derived considerable benefit from drinking the Llangammarch Wells mineral water. In the latter case (which was that of Mr. Russell himself) the amount of uric acid voided was estimated by Hopkins's method.

During the season of 1899 I had several cases of lithæmia under my care. All those that I have subjected to analysis are given below. My method was to analyse two specimens in the above manner before the treatment began and then to make a second series of analyses about 10 or 14 days afterwards. In some cases a third series of analyses was made at a later date. In each case the amounts of uric acid given are the mean of two observations. My results are given in the following table.

Case.	Normal diet.			Drinking mineral water.				
	Urine.	Uric acid.		Days after first experiment.	Urine.		Uric acid.	
	Amount in c.c.	Per cent.	Total output per diem.		Amount in c.c.	Increase or decrease per cent.	Per cent.	Total output per diem.	Increase or decrease per cent.
			grms.					grms.	
1.	1440	0·058	0·83	14	1900	+ 31	0·066	1·25	+ 50
	1130	0·091	1·03	6	1530	+ 35	0·087	1·34	+ 30
2.	483	0·0675	0·318	15	663	+ 36	0·0787	0·513	+ 61
				35	650	+ 34	0·0385	0·25	− 22
3.	2000	0·0206	0·400	10	2850	+ 42	0·600	0·855	+ 113
				60	1560	− 22	0·0146	0·227	− 44
4.	1120	0·0423	0·47	11	1700	+ 51	0·033	0·561	+ 19
5.	840	0·0206	0·175	15	1700	+ 102	0·0273	0·464	+ 165
6.	1420	0·0275	0·39	10	1700	+ 20	0·0238	0·404	+ 3
				18	1700	+ 20	0·0135	0·229	− 42
7.	1036	0·0417	0·467	12	1850	+ 77	0·012	0·222	− 110
				25	1850	+ 77	0·0169	0·312	− 34

CASE 1.—This was the case of Mr. Russell, which I have referred to above, and which I have inserted for comparison with other cases.

CASE 2.—This patient suffered from pain in the loins, lassitude, and muscular weakness. She passed very little urine, and her appetite was very poor. She had influenza in February, 1899. Under treatment she made considerable improvement, lost the pains, and became more active. Her appetite and general health were very much better. There was at first an increase and then, after a month's treatment, a decrease in the amount of urine passed.

CASE 3.—A man, aged 38 years, had been suffering from rheumatism and gout for nine years. He complained of pain in the loins and between the scapulæ, and also had some stiffness of the joints. He was accustomed to considerable outdoor exercise. After a few days' treatment the uric acid excreted was more than double in amount and the pain was considerably less. After two months' treatment the pain had quite disappeared although the uric acid had diminished from its original amount.

CASE 4.—This patient, a woman, aged 50 years, had suffered from gout and rheumatism for some years. There were signs of osteo-arthritis of both knees and symptoms of chronic gastric catarrh. After a few days' treatment there was an increase of 19 per cent. in the uric acid excreted, and later there was improvement in the condition of the knees.

CASE 5.—A woman had complained of pain in the lumbar region for two years, accompanied by an excessive deposit of uric acid. She had also had symptoms of renal colic. After drinking the mineral water for a fortnight there was an increased output in the urine of 102 per cent., and in the uric acid of 165 per cent. This was accompanied by a diminution of the pain and a general improvement in the patient's health.

CASE 6.—This patient, a female, had suffered for four years from an obscure urinary trouble. She occasionally passed very offensive urine, which occurred generally after overwork and after walking. She then passed much mucus and pus. She had consulted several specialists, but none would give a definite opinion as to the nature of her case. When she came under my care she was in a very weak condition, but her urine was normal. After three weeks' treatment she was much stronger, but the uric acid, which at first increased slightly, afterwards diminished considerably.

CASE 7.—This patient, a man aged 57 years, had suffered from gravel for some years, accompanied by lumbar pain. He occasionally passed fine "sand" in his urine, but had not done so for two months. A year ago there was a slight amount of albuminuria. On examining the abdomen there was some pain over the right kidney. After a few days' treatment I found that he was passing less than half the amount of uric acid, and at the same time he felt much stronger and the pain in the loins was considerably diminished. This improvement continued, and at the same time there was a relative increase in the amount of uric acid.

It will be noted that of the above seven cases, four of them (Case 1, Case 2, Case 3, and Case 5) showed not only a decided relief of the symptoms, but a considerable increase in the output of uric acid. In Case 7, while the symptoms were relieved the uric acid diminished, and the same may be said to a certain extent of Case 6. It will be observed that in all the cases where a later examination was made the uric acid diminished in quantity. Probably the excess accumulated in the system had by that time been removed by the action of the water. In all the cases there was an increase in the flow of urine. That this is not solely due to the increased amount of fluid consumed, but is due partly to the action of the mineral water, was shown in the former article by Mr. Edward Russell and myself, mentioned above.

These results are, on the whole, most encouraging, and they show that in the Llangammarch mineral water we have a powerful agent for the elimination of uric acid. This water is therefore indicated in cases of rheumatism, gout, osteo-arthritis, and in all forms of the uric acid diathesis. In addition, patients who drink the water at the spring have many opportunities for physical exercise in a mountainous district like Llangammarch, thus forming a valuable adjunct to treatment.

Llangammarch Wells, Breconshire.

BRENTRY HOME FOR INEBRIATES.—At a meeting of the Bath Town Council held on June 12th it was decided to enter into an arrangement with the authorities of the Brentry Home for Inebriates, near Bristol, by which for the payment of £1000 seven beds in that institution would be available for 25 years.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum propriis collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF HERMAPHRODITISM.

(Under the care of Mr. G. R. TURNER.)

THE frequency of cases of true hermaphroditism is probably not great, but the statistics of the French military revising councils show[1] that a cleft of the scrotum causing an appearance of two labia is met with in about 5 per 1000 of all those rejected. The increase of the intertubular tissue of the testis (noticed in the following case) is mentioned in several of the cases in which the testis of an hermaphrodite has been examined microscopically after having been removed. We refer our readers to an annotation entitled "Marriage between Persons of the Same Sex" which appeared in THE LANCET of June 23rd, p. 1814, and which illustrates the extreme difficulty of diagnosis of sex in some of these cases.

A "girl," aged 14 years, had been "ruptured" ever since birth. She had worn a truss until she was 12 years of age, but since then nothing in the way of a support. She had been in early life under the care of a surgeon to a truss society who had wished to operate. She is the third of a family of six who are all well developed. She had never menstruated. On admission to St. George's Hospital there was a moveable oval irreducible swelling in the left inguinal region which was taken to be a prolapsed ovary. This was removed and proved to be a testis lying over the external abdominal ring. The cord was ligatured and the ring was closed by suture. The operation wound healed by first intention. The naked-eye appearance of the organ removed was that of a well-developed testis, the epididymis of which contained three little cysts. A microscopical examination was made by Dr. H. D. Rolleston and showed that there was no ovarian tissue; there were seminal tubules like those of the testis. In addition there were masses of interstitial cells like those seen in the testis of some of the lower animals.

Gas and ether were subsequently administered to allow of a thorough examination of the individual by Dr. W. R. Dakin and Mr. G. R. Turner. The mammary glands were both well developed for the patient's age. The pubic hair was scanty but the external parts were those of a well-developed female, the labia majora, minora, clitoris, and urethral orifice being normal. The latter was slightly caruncular. The vagina admitted the index finger half way up to the second knuckle. The width of the vagina was normal; it terminated in a cul-de-sac. No cervix uteri could be felt. A very small transverse cord, like a Fallopian tube or vas deferens, could be felt per vaginam. Nothing could be felt in the labia. On bimanual examination a transverse cord could be felt to slip away. This cord was situated one inch behind the pubes. Per rectum the whole pelvis could be explored. There was nothing found—nothing to represent either the uterus or prostate gland. The following were the pelvic measurements: inter-spinous, 6¾ inches; inter-cristal, 9⅝ inches; and external conjugate, 6¾ inches.

Remarks by Mr. TURNER.—This case would appear to be one of true hermaphroditism in which the external organs of generation are like those of the normal female, the vagina ending in a cul-de-sac with no trace of uterus or ovaries. The inguinal testicle (now in the museum of St. George's Hospital) had all the naked-eye appearance of the normal except that the epididymis was the seat of cystic degeneration. Microscopically, too, the structure was testicular. A somewhat similar case is recorded by Dr. Chambers in the Transactions of the Obstetrical Society of

[1] Lagneau: Le Bulletin Médicale, April, 1895.

London, vol. xxi., page 256. In that case, too, the orifice of the meatus urinarius was irregular and granular; the vagina was an inch long and there was no trace of hymen, uterus, or ovaries. There were present two testicles the glandular structure of which had never undergone its normal development. Leopold records a similar case and Hauf made a post-mortem examination on one in 1873. In Shattock's case of spurious hermaphroditism with cleft scrotum and extreme hypospadias [2] both testes were removed in the course of a radical cure for double inguinal hernia. It is interesting to note that in these testes, as in the one removed from my patient, there was "a highly pronounced group of interstitial cells in the stroma." I have been unable to discover any marked inclination to either of the sexes in my patient. "She" has been brought up as a girl and acts as nurse to her younger relatives.

NEWCASTLE-ON-TYNE ROYAL INFIRMARY.

A CASE OF REMOVAL OF A GALL-STONE FROM THE COMMON BILE DUCT BY THE DUODENAL INCISION.

(Under the care of Mr. FREDERICK PAGE.)

IN the following case a gall-stone impacted in the common bile-duct was removed by an incision through the duodenal wall. This operation has been called duodeno-choledochotomy and was first performed by McBurney,[1] then by Kocher,[2] and for the third time by Mayo Robson.[3] It is a very useful method in some cases, as the stone is frequently fixed in that portion of the common duct which lies behind the duodenum. It has now been performed in about 15 cases with three deaths, a mortality of 20 per cent.

The patient was a woman, aged 59 years, who was admitted into the Newcastle-on-Tyne Royal Infirmary under the care of Mr. F. Page. She had been subject for the past two and a half years to sudden attacks of severe pain in the region of the gall-bladder extending down to the umbilicus and lasting several hours; when very severe it extended through to the back. The attacks were always accompanied by vomiting and shivering, the latter sometimes coming on before the pain. She was troubled in this way about once a fortnight. Three months previously she became jaundiced after an attack of colic; the discolouration had continued more or less

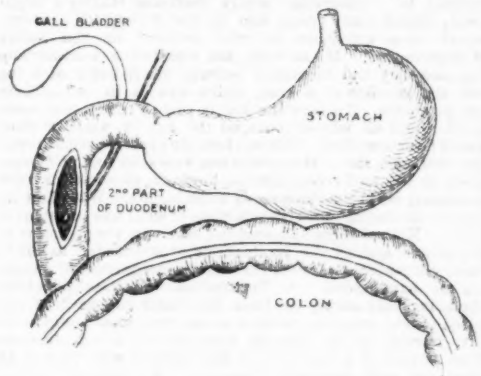

Diagram showing position of incision in duodenum.

until admission. Her family and previous history did not relate anything of importance. She was stout but feeble. The skin and conjunctiva were slightly jaundiced. The urine contained bile. The fæces were clay-coloured and she suffered from constipation. The gall-bladder could not be felt on abdominal palpation. During the seven weeks she was in hospital before operation she had several attacks of biliary colic.

On Oct. 14th chloroform was administered and the operation performed as follows. 1. A vertical incision was made over the situation of the gall-bladder. 2. The stone was felt to the right side of the head of the pancreas, but as very extensive adhesions prevented the common duct from being exposed from the outer side the anterior wall of the second part of the duodenum was incised in the position shown in the diagram, the opening of the common bile duct into the duodenum was incised upwards, and a large gall-stone was removed. The incision into the opening of the common duct was not sutured. 3. The incision through the anterior wall of the duodenum was closed as follows. A continuous catgut suture passing through the three coats of the bowel was first inserted, then the line of suture was covered in by a continuous suture of fine silk passing through the peritoneal coat alone; one or two Lembert's sutures were put in at the ends of the incision. 4. The abdominal wound, which had been enlarged parallel to the right costal margin, was then closed with three tiers of sutures. No drainage was employed. After the operation the patient was troubled with bronchitis but eventually completely recovered.

Remarks by Dr. JOHN CLAY, *surgical registrar*.—In the above case I had the good fortune to assist Mr. Page. It is an example of the simple and rapid method of suture employed by that surgeon. For the notes of the case I am indebted to the house surgeon, Dr. L. F. Hemmans.

[2] Brit. Med. Jour., vol. i., 1897, p. 460.
Annals of Surgery, Oct. 18th, 1894.
[2] Correspondenzblatt für Schweitzer Aerzte, 1895, No. 7.
[3] Gall-bladder and Bile-ducts, second edition, p. 271.

Medical Societies.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—Nomenclature of Transverse Presentations and of Version.—Set of the Pelvis in the Body.

A MEETING of this society was held on June 13th, Dr. R. MILNE MURRAY, the President, being in the chair.

Dr. N. T. BREWIS showed (1) a Uterus removed by Hysterectomy (sub-peritoneal) after Cæsarean Section at Term; (2) a Gravid Uterus at the fifth month, removed by Panhysterectomy for Cancer of the Cervix; (3) a Uterus removed by Vaginal Hysterectomy for Cancer of the Cervix and Body; and (4) a Pyosalpinx removed by Vaginal Section.

Dr. F. W. N. HAULTAIN showed (1) a Ruptured Extra-uterine Gestation (after the operation a decidua was expelled from the uterus followed by very severe post-decidual hæmorrhage); (2) micro-photographs and microscopical preparation of a Fibro-adenoma of the Vagina; (3) a Cyst from the canal of Nuck; and (4) an Ovarian Cyst which was associated with 920 ounces of ascitic fluid.

Dr. J. W. BALLANTYNE showed photographs of Iniencephaly, Sympodia, Knotted Cord, &c.

Dr. J. HAIG FERGUSON showed a Dermoid Ovarian Tumour removed from a patient four months pregnant.

Dr. D. BERRY HART read a paper on The Nomenclature of Transverse Presentations and of Version, with Remarks on the Choice of the Leg seized. The best nomenclature of the position in transverse presentations was that which divided them into "dorso-anterior" and "dorso-posterior" and each of these again into "left acromio-iliac" and "right acromio-iliac," according as the acromion was to the left side or to the right side. It was better to name the positions from the acromion as it was often the presenting part. This plan was more exact than that which named them after the head, as "right cephalo-iliac" or "left cephalo-iliac." Little could be said in favour of the use of the scapula as the indicating part, as "left scapulo-anterior;" the acromion was a more precise point. The terms "right" and "left" referred to the mother and not to the fœtus. The nomenclature of the varieties of version was at present very confusing. The terms applied to version were descriptive either of the method by which the version was performed or of its aim. In "podalic" or "cephalic" version the aim was to substitute the lower limb or the head for the presenting part. The terms "bipolar version" and "external version" applied to method. Dr. Hart defined three great varieties of version: (1) combined external version (cephalic) which was now seldom used in practice and was practically performed by external manipulation, its aim being to get the head to present; (2) Simpson's combined version

(podalic) which was carried out by one hand placed externally on the abdomen and the other hand passed deeply into the uterus, its aim being "podalic," as it was to bring the lower limb to present; and (3) Braxton Hicks's bipolar version (podalic) which was performed with one hand external and the other internal but not deep (the hand should not be passed beyond the presenting part), the aim of which also was podalic. The second and third methods might for shortness be called "Simpeon's podalic" version and "Hicks's podalic" version. In the choice of the leg seized Simpson advocated the further knee, and Galabin advocated the near foot as a rule. Simpson's original case was a dorso-posterior one and Galabin's a dorso-anterior one. In a simple case they could turn easily whichever leg was taken and the leg seized would come to the front in the end. In difficult cases, with the liquor amnii partly drained off, it was of importance to seize the knee which gave the safer operation. Nagel had given by far the most complete discussion of the subject. He did not consider the question of the leg to be seized merely from the point of view of the accomplishment of the version, but indicated that the leg, the half breech of which would pass sooner to the symphysis, should be seized, thus taking the standpoint of the older observers, Baudelocque and Hohl, and of his own master, Gusserow. Dr. Hart summed up as follows:—"Seize the knee or leg which maintains the dorso-anterior position or converts the dorso-posterior into a dorso-anterior—that is, take the further limb in dorso-posterior cases, the nearer in dorso-anterior cases. When, however, in dorso-anterior cases the breech is in the fundus traction on the nearer leg may convert it into a dorso-posterior, and when the breech is near the os in dorso-posterior position traction on the further leg may not alter the posterior position of the back after version, owing, again, to the want of the necessary obliquity in the pull."—Professor A. R. SIMPSON, the PRESIDENT, Dr. A. H. F. BARBOUR, and Dr. S. MCVIE discussed the paper.

Dr. A. H. FREELAND BARBOUR read a paper on the Set of the Pelvis in the Body (Inclination of the Brim apart from Posture) and its Obstetrical Significance. The inclination of the brim, instead of being described in reference to the horizontal plane, might be described with the subject lying on the back, in relation to a perpendicular let fall from the upper margin of the symphysis on a line passing through the promontory of the sacrum in the direction of the long axis of the abdomen. The advantage of this method was that instead of taking a plane outside of the body, which had no obstetrical significance and to which the relation of the pelvis changed with every posture, a fixed line within the body was taken. The angle of divergence of the plane of the brim (i.e., the plane passing through the conjugate of the brim) from this perpendicular was necessarily the same as the angle of divergence of the axis of the brim from the long axis of the abdomen. The smaller this angle—i.e., the more nearly the plane of the brim approached in direction with this line—the more did the pelvic inlet come into line with the long axis of the abdomen. The range of divergence in pelves which were obstetrically normal was considerable, varying from 40 degrees to 60 degrees. While a mean might be taken of 55 degrees, the variability of pelves from this, within certain limits, was a more important fact than the constancy of this angle which the mention of a figure was apt to convey. Though they were not in a position to gather up from clinical observation the results of this anatomical fact, owing to the difficulties of determining the size of this angle in the living subject, it was evident that its variability must exert a distinct influence on the engagement of the head and the driving power of the uterus in multiparæ. Dr. Barbour then discussed the work of Naegele, Weber, Meyer, and Prowchownik on the inclination of the brim clinically and the effect of posture on it. He also specially referred to the recent work of Dr. Sandstein who measured the height of the promontory above the symphysis in 28 cadavers, noting also the length of the conjugate. The true conjugate was found to range from four inches to 5·8 inches; and the height of the promontory from 3·7 inches to 5·4 inches above the symphysis. It was found that an increase in the length of the conjugate did not imply a proportionate rise in the level of the promontory, the cause of the variation in its level being the variability of the set of the brim which had a range of nearly 20 degrees.—The PRESIDENT and Professor A. R. SIMPSON made remarks on the paper.

CHELSEA CLINICAL SOCIETY.—At the annual meeting of this society, held on May 15th, Mr. J. Foster Palmer, the President, being in the chair, the following gentlemen were elected office-bearers for the session 1900–1901:—President: Dr. William Ewart. Vice-Presidents: Dr. C. C. Gibbes, Dr. C. J. Harrison, Mr. C. A. Morris, and Mr. A. F. Penny. Council: Dr. J. Barry Ball, Dr. J. Blumfeld, Dr. T. Vincent Dickinson, Mr. J. J. Marsh, Mr. J. W. E. Mortimer, and Mr. W. H. C. Staveley. Treasurer: Dr. A. Barry Blacker. Secretaries: Dr. Austin E. Cooper and Mr. R. L. Norman.—Mr. Foster Palmer, having expressed his hearty thanks to the vice-presidents and other members of the council as well as to the members of the society generally for their valuable coöperation and support during the last two years, proceeded to give a short valedictory address on some of the enemies—in a metaphysical sense—of the society, past, present, and future. These, which he characterised as demons, were Ignorance, Idleness, Superstition, and Fads founded on Folly. In accounting for the persistent vitality of some of these Fads he dwelt on the advantage Ignorance often possessed in being absolutely uncontrolled by the inconvenient knowledge of scientific facts and thus being able to give free scope to the powers of rhetoric and imagination. At the same time he thought the issues were still further obscured by the tendency to clothe their statements too much in technical or scientific language, and he advocated the cultivation of a simpler Anglo-Saxon diction without going quite so far as to adopt the powerful slang phraseology of John Hunter. The particular Fads referred to were as follows. 1. Anti-vaccination.—The undoubted facts of the remarkable diminution of small-pox and the rare occurrence of insusceptibility even now among the unvaccinated were alluded to and shown to be inadequately met by the prevalent objections that general sanitation had been the cause of the diminution and that the statistics had been falsified or wrongly interpreted. The case for vaccination did not rest wholly upon statistics. 2. Anti-vivisection.—The difficulty of tracing, and even of understanding, the progress of scientific research to those untrained in science was as great as that of grasping legal technicalities was to those untrained in law. On this subject, therefore, imagination and rhetoric had both run wild and it readily lent itself to both. The constant persistence of the Fad was partly due no doubt to the prevalent hatred of science and its professors in England (and in England alone), but also to some extent to the hyper-technical and scientific diction already referred to. Otherwise, surely Professor Huxley's argument, stated many years ago in the *Nineteenth Century*, would have convinced all who believed in the utility of experiments. If, he said, the alternative was actually put, and they had to choose between the sacrifice of a dog and the sacrifice of a man, which was it to be? There was no choice. To save the dog in such a case would mean murder, and all who encouraged the act by word or deed would be accomplices. This was how the experimenters viewed the case, and, sad as the alternative was, they had no choice. Most of the anti-vivisectionists, however, pinned their faith absolutely on the uselessness of experiments. Was there no way of convincing anti-vivisectionists of what was so patent to them? Most of them had seen life saved by the injection of strychnine, and all the applications of strychnine, as Sir T. Lauder Brunton says, were the direct consequences of physiological experiment. 3. Teetotalism.—Without definitely including this among the Fads Mr. Foster Palmer here ventured to take exception to some of the experiments quoted by Mr. Horsley on the ground that alcohol taken otherwise than as part of a meal (i.e., a good dinner) was taken in an abnormal and unnatural manner. It required neither argument nor experiment to condemn nips of alcohol taken on an empty stomach. Nor was rapidity of thought necessarily an absolute test of mental and physical health, or the occasional slowing of thought necessarily an evil as seemed to be assumed. The net result appeared to be that alcohol was not a stimulant at all, but was in reality a depressant causing a delusive feeling of stimulation. It was merely a change of names. "That which we call a glass of port, by any other name, &c." The actual physiological and therapeutical value of alcohol remained unaffected. Mr. Foster Palmer concluded by expressing a hearty wish for the future progress of the Chelsea Clinical Society.

WIGAN MEDICAL SOCIETY.—An ordinary meeting of this society was held on June 21st, Mr. R. H. Cowan, the

President, being in the chair, and there was a good attendance of members.—The President gave his presidential address on Some Experiences of Colliery Surgery. The address was an excellent one and was very interesting to the members.—Mr. Hugh E. Jones showed some naked-eye specimens illustrating the Anatomy and Pathology of the Ear, and supplemented the demonstration with some remarks on the Surgery of Middle-ear Disease.—A cordial vote of thanks was passed to the President for his address and to Mr. Jones for his interesting demonstration.—The President and Mr. Jones replied.

Reviews and Notices of Books.

A Manual of Medicine. Edited by W. H. ALLCHIN, M.D., F.R.C.P. Lond., F.R.S. Edin., Senior Physician and Lecturer on Clinical Medicine, Westminster Hospital, &c. Vol. I.: General Diseases. London: Macmillan and Co., Limited. 1900. Pp. 442. Price 7*s.* 6*d.*

THIS work is the latest addition to those publications which are not written by one author but issued under the editorship of a recognised authority, the various subjects being considered by different writers. The forms of disease are viewed more especially from the point of view of their clinical manifestations and treatment. The subjects of etiology and morbid anatomy are briefly summarised, but for further knowledge of these aspects of disease the reader is referred to other works. The aim of the editor has been to present such a picture of the several maladies as will conform to the appearances detected at the bedside and enable the observer rationally to administer such treatment as our art affords.

The present volume deals with "Diseases Excited by Atmospheric Influences" and "The Infections." The article on the first-named is written by the editor, Dr. W. H. Allchin, and includes the effect on the human body of heat and cold and also the phenomena produced by exposure to increased or decreased atmospheric pressure. A reference is also made to "lightning stroke." The chapter is a brief one but contains a large amount of useful information. It will be especially appreciated by those who desire to obtain a clinical knowledge of the conditions alluded to without having to glance through a long article containing a commentary on the various theories which from time to time have been brought forward to account for the phenomena encountered under such varying atmospheric influences. Professor G. Sims Woodhead contributes a most able paper on "The Infections." He gives a brief review of the general characters of the pathogenic micro-organisms and the toxic products of bacteria. Natural and acquired immunity are likewise discussed and also the question of "predisposition" to certain disease of bacterial origin. Details as to the general course and characters of the infective disease follow, especial reference being made to "mixed infections" which are by no means uncommon.

A series of articles then follows on the various "fevers." Many of these are of unusual interest, such as those on Tropical Diseases. Mr. James Cantlie writes on Cholera, Plague, Leprosy, Dengue, Beri-beri, Epidemic Dropsy, Oriental Sore, Dysentery, Malaria, Hæmoglobinuric Fever, and Kala-Azar, whilst an article on Mediterranean Fever is from the pen of the late Captain M. L. Hughes, R.A.M.C. Major W. G. Macpherson, R.A.M.C., contributes the article on Yellow Fever and Dr. Colcott Fox writes on Verruga and Frambœsia. This volume, therefore, should be particularly valuable to those practising in the climates where the above-mentioned fevers are met with.

Out of 45 articles it would be difficult to select any one for especial praise. All the authors seem to have carried out the intention of the editor and to have written their contributions from a clinical rather than from a pathological oint of view.

Dr. J. Rose Bradford is responsible for the articles on Mycoses and Rabies. In reference to the latter he urges that the Pasteur treatment should be applied as soon as possible if there are good grounds for suspecting the animal which attacked the patient to be rabid, and that the treatment should not be delayed until the diagnosis has been confirmed by the inoculation test, as thereby three weeks may be lost and the disease declare itself before protective measures can be carried out. Dr. F. F. Caiger contributes interesting articles on Diphtheria, Measles, Rötheln, Scarlet Fever, and Varicella.

One of the best contributions in this volume is that by Dr. W. Cayley on Typhoid Fever, and particularly interesting are his remarks on the "Complications and Sequelæ." Hæmorrhage and perforation naturally occupy the foremost place, but stress is also laid on the respiratory and nervous complications which may occur. With regard to the latter, peripheral neuritis and "typhoid spine" are mentioned as considerably prolonging the discomfort and sufferings of the patient. Dr. Cayley speaks highly of the "bath treatment" of typhoid fever, or when bathing cannot be employed of sponging. Details are given of both these methods which practitioners should have no difficulty in following.

Another instructive article is that on Acute and Sub-acute Rheumatism, by Dr. D. B. Lees. Attention will no doubt be directed to the section on Pathology. The remarks here found admirably sum up the views rapidly becoming accepted, that acute rheumatism is not essentially a joint disease. Dr. Lees says: "The true nature and origin of this disease are still unknown; but the facts already stated make it certain that no neurotic theory and no theory of perverted metabolism can fully account for the phenomena; these strongly suggest a microbic infection. The greater frequency and greater virulence of rheumatism in childhood remind the physician of the infectious fevers, and the occasional occurrence of sore-throat and of a characteristic eruption, with the pyrexia, are other points of resemblance. ..... No microbe has yet been proved to be the cause of rheumatism, but the same is true of such undoubtedly microbic diseases as measles, scarlet fever, whooping cough, and syphilis." Acute rheumatism and lobar pneumonia seem now to have taken their permanent places amongst "the infections."

No better author could have been found for the contributions on Variola and Vaccinia than Dr. S. M. Copeman and both these articles will well repay perusal.

There are numerous other well-known authorities who contribute to this volume, such as Dr. J. W. Washbourn (Erysipelas, Infective Endocarditis, Relapsing Fever, and Weil's Disease) and Dr. W. Hale White ("Fever"), but we have said sufficient to indicate the high level of excellence apparent in this first volume of a manual for which we predict success.

The Diseases of Women: a Handbook for Students and Practitioners. By J. BLAND-SUTTON, F.R.C.S. Eng., and ARTHUR E. GILES, M.D., B.Sc. Lond., F.R.C.S. Edin. Second edition. Crown 8vo. With 115 Illustrations (mostly original) in the text. London: Rebman, Limited. 1900. Pp. 473. Price 11*s.* net.

THE appearance of a second edition of this text-book has been taken advantage of by the authors to carry out a careful revision. They have succeeded in doing this without unduly increasing the size of the volume. Only 37 new pages have been added, while the number of illustrations remains the same. Amongst the numerous additions that have been made the chapter upon Vaginal Secretions and Vaginal Infections has been brought thoroughly up to date and now presents a very clear and succinct account of the important rôle played by the vaginal bacillus. The authors are inclined to overrate the importance of some of the subjects which they describe and in consequence the book is

somewhat ill-balanced. For example, 33 pages are devoted to a consideration of myomata of the uterus and only eight to that of carcinoma of the body and cervix of the uterus. The practice of describing epithelioma apart from carcinoma is not one that conduces to clearness in teaching students. Squamous carcinoma is quite correct and certainly a less misleading term. There are some curious omissions. Nowhere do we find any account of the method of introducing a Hodge's pessary. No mention is made of conservative operations under the surgical treatment of diseases of the Fallopian tubes and J. Taylor's classification of intra-ligamentary gestation is not given. Abdominal drainage after colliotomy is described, but not vaginal, and nothing is said as to the great value of intermittent uterine contractions in the differential diagnosis of hydramnion. As might be expected, one of the best sections is that upon tubal pregnancy. It is interesting to note that of the authors' large series of cases the proportion of tubal abortion to tubal rupture has not been more than one to four. The important statement that no decidua forms in the tube in cases of tubal gestation is based upon the careful microscopical examination of 25 early gravid tubes. In the surgical treatment of myomata the operation of oöphorectomy is regarded as obsolete, to be replaced by conservative hysterectomy, one or other ovary being left. The opinion which we expressed in our review of the first edition of the book still holds good—viz., that the authors are inclined to neglect the medical treatment of gynæcological cases and that a student in reading the somewhat sketchy account of some of the most important major operations might be led to look upon them as easy and to recommend them without a due regard to their difficulties and dangers. In these days when operative gynæcology is so much to the fore we cannot help regarding this as somewhat of a defect in an otherwise excellent book. While we may not agree with all which the authors teach, yet we must admit that their practice is not wanting in boldness of conception or their views in lucidity of expression. Several of the new illustrations are of great interest, notably No. 17 and No. 18, a case of hematocolpos and hæmatometra in the newborn child compressing the urethra and ureter, and No. 87, a cystic ovary containing a calcified corpus fibrosum. By a diminution in the size of the pages the book is rendered easier to hold and the appearance of the print is improved. The index has been considerably enlarged and we must congratulate both the authors and the publishers upon the care that has been expended in the preparation of this new edition.

A Treatise on Nasal Suppuration: or, Suppurative Diseases of the Nose and its Accessory Sinuses. By Dr. LUDWIG GRÜNWALD of Munich. Translated from the Second German Edition by WILLIAM LAMB, M.D., M.C. Edin., M.R.C.P. Lond. With eight Illustrations in the Text, Two Plates, and One Table. London: Baillière, Tindall, and Cox. 1900.

THIS is a work of 316 pages with a copious bibliographical list of references and an index. The first part is general and deals with symptomatology and secondary diseases. The subjective disturbances of smell and sight together with mental processes are fully discussed, with such associated troubles as polypi, intracranial suppuration, and septicæmia. The methods of examination and prognosis are fully described.

The second part deals with special sources of suppuration, and here, as would be expected, the antrum and ethmoidal cells and the frontal sinus and sphenoidal cavity receive due attention.

A careful perusal of this book shows the labour bestowed upon it and impresses the reader with the fact that it is largely the outcome of the best sort of work—personal observation and research. Full lists are given from the author's actual experience of various conditions and symptoms which are of the highest practical importance. He has also endeavoured to combine pathological changes with clinical research and to explain their correlation, a matter of no ordinary difficulty, especially in this region of the body.

Speaking generally, we have read this book with a sense of disappointment. This is not due to the work itself, which is one of excellence, but to the fact that the author, though a man of unrivalled experience in this particular subject, has to confess to the almost insuperable difficulties which attend the diagnosis, especially the differential diagnosis, of sinus suppurations, and the too often tedious and negative results of treatment. We have often experienced these difficulties, and the clouds of doubt and difficulty which surround them are not lifted from our path by Dr. Grünwald's book. This wise and skilful observer does not hesitate to tell us that he has experienced cases of chronic antral empyemata which are incurable by all ordinary methods—a striking contrast to the "universal cures" claimed by some observers in this and other countries. In discussing the diagnosis of latent frontal empyemata a close reader will see that in the author's mind certain doubts arise as to the value of catheterisation and the position of drops of pus in the nasal chambers, and we are driven to the conclusion that a small exploratory opening is often needful to settle a vexed and difficult question.

The author thinks highly of the method of "damming back" certain areas of the nose in making differential diagnosis, but this again must in practice be difficult and very likely to lead a too confident observer totally astray.

The value of this book consists in its obvious honesty and in the wealth of clinical observation submitted. A close study of it will show how neglected the subject of nasal suppurations has been in the past and what a rich field for diagnostic research and improved treatment lies open in the future.

LIBRARY TABLE.

Burdett's Hospitals and Charities, 1900. By Sir HENRY BURDETT, K.C.B. London: The Scientific Press, Ltd. Pp. 958. Price 5*s*.—The eleventh issue of this useful book of reference is in no way behind any of its predecessors. To anyone who wishes to know about hospitals, as to their management, income, or the medical staffs and their hours of attendance, we commend the work as a mine of information. From the introductory chapters we learn that, excluding St. Bartholomew's Hospital, 75 of the London hospitals have invested property amounting to upwards of £4,000,000. Of these 75, 35 have invested property amounting to less than three years' ordinary expenditure, 21 have funds invested amounting to from three to five years' ordinary expenditure, and 18 have invested funds amounting to more than five years' ordinary expenditure.

My Diocese during the War. By the Bishop of NATAL. London: George Bell and Sons. Pp. 266. Price 6*s*.—This is in no sense to be taken as a deliberately thought-of comment upon the events of which it treats, for the book is merely a transcript of portions of Dr. Baynes's daily diary. But as notes of the observation of an intelligent and thoughtful civilian, of one who, owing to his official position, was affected to a far wider degree, and in even more distressful ways, than the ordinary civilian, the book is well worth reading. The notes go down to the end of April. Among the illustrations are some reproductions of drawings by the Bishop and also some photographs by Mr. Clinton Dent, including the views of the Boer trenches at Magersfontein which we had the privilege of publishing in our issue of June 2nd.

JOURNALS.

Records from General Practice. By J. KINGSTON BARTON, M.R.C.P. Lond., M.R.C.S. Eng. London: John Bale, Sons, and Danielsson. June, 1900. Pp. 84. Price 2*s.* 6*d.*—Few general practitioners can find time to take written notes of, and observations upon, their patients' cases, and there is no doubt that much clinical information is lost thereby. Mr. J. Kingston Barton has had the perseverance to keep a record of a large number of cases during the last 20 years and now has formed the very praiseworthy intention to publish some of them. The first instalment appears in the form of a periodical and others will be published "from time to time." The first number contains the report of several interesting cases, notably a summary of 50 cases of acute abdominal affection, including 32 cases of appendicitis and seven of gastric ulcer. There are also some instructive observations on conditions of the teeth—Erosion of the Teeth in Children, the Ratio of Occurrence of Deficient Enamel, and Early Decay of the Teeth. The last article in the book is an appropriate one for this time of the year—viz., Holidays, with Notes on the Life-History of the Salmon. Mr. Barton may be congratulated on his publication and we wish it every success.

Edinburgh Medical Journal.—The June number opens with a long paper by Dr. Louis Cobbett entitled, "Has Antitoxine reduced the Death-rate from Diphtheria in our Large Towns?" A consideration of the statistics supplied by nine large towns in Great Britain for varying periods of years shows that a remarkable fall, both in the diphtheria death-rate and case mortality, has occurred since 1894. Several causes may have contributed to this change, but there appears to be every reason for believing that the most efficient of all was the introduction of diphtheria antitoxin. Dr. Cobbett says that the diphtheria bacillus may remain in a dangerous state for a very long time in the mouths of those who have recovered, so that convalescents can be declared free from infection only after the disappearance of the bacillus has been ascertained, and not at the end of any arbitrarily selected period such as three weeks. Altogether there are five original articles.

Scottish Medical and Surgical Journal.—In the June number Professor A. R. Simpson of Edinburgh writes on the application of the steam of boiling water to the endometrium. This may be done in two ways, either by leading the steam through a fenestrated catheter into the uterine cavity (atmokausis) or by passing into the uterus a non-fenestrated catheter heated by steam which is not allowed to escape into the uterus (zestokausis). In the Edinburgh Royal Infirmary Professor Simpson has used the treatment in 14 cases of endometritis with menorrhagia or metrorrhagia. It was always carried out under chloroform narcosis and was usually continued for 45 seconds. Of the 14 cases 11 were cured and three were improved. In a long paper, entitled "Heredity in Disease," Dr. G. Archdall Reid speculates on some of the far-reaching effects of various maladies, such as the extinction of certain uncivilised populations through the spread of tuberculosis among them after the advent of superior races.

Dublin Journal of Medical Science.—The original articles in the June number are on Toxins and Antitoxins, by Dr. A. C. O'Sullivan; on Commercial Pepsin, by Sir Charles A. Cameron; and on the Dublin Method of Effecting the Delivery of the Placenta, by Dr. Henry Jellett.

Mercy and Truth.—The June number was issued before the recent outbreak of hostilities in China. It contains articles on the Work of Medical Missions in Persia, by Dr. D. W. Carr, of Julfa; on Overcoming Obstacles in China, by Mr. L. G. Hill, of Pakhoi; and on Opening a Way for the Gospel, by Dr. Mabel Poulter, of Hok-Chiang, South China.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

THIS society, which was founded in 1884 with a somewhat multifarious programme, has now become, as the result of experience, a sickness insurance society exclusively so far as the transaction of new business is concerned. In making this change the directors have, we think, been well advised, for the accumulation of funds to provide deferred benefits is an operation which cannot be carried out economically on a small scale, and this society, therefore, has never been in a position to compete favourably with the better sort of life assurance offices in this department of its work. The annuity department has accordingly been closed and is now being conducted with a view simply to the working out of subsisting contracts. The business of life assurance is carried on by means of a sort of agency arrangement, by which proposals reaching the society are handed on to a particular office, but the connexion between the society and the insurance office is in no sense organic and, indeed, not, as we understand, particularly close. We think that a connexion of that sort cannot be too slight, for it is a serious responsibility to advise a man who is proposing to effect an insurance on his life as to the choice of an office, and the method upon which the society proceeds does not seem to us to involve sufficient discrimination. It is certainly not desirable that the entire insurance business of the profession should be turned into one channel, nor is the office which most readily concedes a rebate from its premium rates likely to be the one which will make the best return to the policy-holder for the premium actually received. It cannot be too often or too impressively pointed out that the secret of good finance in life assurance is the cutting down of all expenditure other than that on benefits to members to the lowest possible percentage of the annual outgo. A rebate from the annual premium may indeed be classed as a benefit when it is made to the policy-holder himself, but it may be doubted whether in fact any benefit in that form is the monetary equivalent of the savings effected by those offices which, eschewing all costly forms of advertisement, are conducted with a view to the benefit alone of the insured members.

But it is no part of our purpose to criticise the choice which the society has made of a patron among the life assurance companies. It is with its own proper work of sickness insurance that we are more concerned, and here we have the satisfaction of saying that the seventeenth report recently issued to the members is entirely satisfactory. The members paid in premiums about £11,300, plus 10 per cent.—say, £12,430—and received in benefit just over £13,000. The difference is made up for the most part of interest upon the investments standing to the credit of this fund; for although these investments were drawn upon to answer the bonus distributed to the members in this "Bonus" year the amount coming from that source was no more than £250. Such a result is in the highest degree creditable to the management of the society and shows that in this department the members obtain their full money's worth in the form of benefit. If to the mere balancing of the account we add the priceless boon of an insurance scheme which carries the invalided practitioner over a period of sickness without any heavy demand upon his savings or other resources we see at once that the aid which this society renders is not to be measured by its mere money worth and that the presentation of a satisfactory balance-sheet, although indispensable, is the least of the claims which the committee are entitled to put forward for the recognition and gratitude of the profession.

The present annual report is accompanied by an actuarial report which does not call for any particular comment.

BRITISH MEDICAL ASSOCIATION, SOUTH-WESTERN BRANCH.—The annual meeting of the South-Western Branch of the British Medical Association was held at Torquay on June 20th. Mr. Paul Q. Karkeek read an interesting paper upon Pre-professional Education of the Medical Student. The secretary (Dr. H. W. Webber) stated that the branch had now a membership of 358. A vote of thanks was awarded to the retiring president, Dr. Mark Jackson of Barnstaple. It was decided that the next annual meeting should be held at Devonport and that Mr. G. Thom should be the president-elect. The dinner was held in the evening under the presidency of Mr. Karkeek.

THE LANCET.

LONDON: SATURDAY, JUNE 30, 1900.

THE crisis in North China, which is causing us such anxiety about the welfare of our countrymen, has also a sad side when considered from a humanitarian point of view. The Chinese, with all their boasted civilisation, have as regards the science and art of surgery and the knowledge and practice of medicine not advanced beyond empiricism. They have kept their healing art in the region of magic with its mythical rites and incantations. No savage tribe or unlettered people practises surgery or medicine in a more primitive fashion or invoke the powers of paganism with more zeal or veneration than do the Chinese. The consequence of this backwardness in medical education must have appalling results at the present moment, when thousands of Chinese are being wounded partly at the hands of their fellow-countrymen and partly by a foreign foe. And while these ignorant fanatics must be punished no medical mind likes to contemplate the idea of neglected surgical injuries. During the Chino-Japanese war the ambulance equipment of the Chinese was rudimentary in the extreme but at the present moment, when undisciplined hordes are being mowed down by Maxims the medical arrangements must be altogether discounted and the condition of the wounded terrible to contemplate.

At Tientsin and Hong-Kong schools of medicine have been established for several years past. At Tientsin LI HUNG CHANG, at the instigation of Dr. IRWIN, inaugurated a medical school some ten years ago and the British Government seconded a medical officer from the British army, Surgeon-Major F. S. HEUSTON, to take up the work of superintending the teaching in the institution. LI HUNG CHANG'S primary idea in establishing the school was to provide medical men trained in Western medicine for service in his army and navy. We use the word "his" army and navy advisedly, for it was only in LI HUNG CHANG'S province of Chihli, of which he was formerly Viceroy, that anything like a modern army and navy existed in China. In 1887 a college of medicine for Chinese was opened in Hong-Kong. The school was initiated and its regulations were drawn up by Mr. JAMES CANTLIE, and Dr. PATRICK MANSON was the first dean. The Viceroy, LI HUNG CHANG, was (and is still) the patron, and in the letter of his acceptance of the position this head and front of Chinese mandarinism, this impersonation of anti-foreign education, wrote that "he hoped that anatomy and chemistry would form a prominent part in the training of the students, for he held these sciences to be the basis of all true medical knowledge." The grasp of knowledge expressed in these words by a man ignorant of science, steeped in Chinese prejudices and old-time mythology, is notable. The Hong-Kong and Tientsin schools are the only attempts in China at systematic teaching of modern medicine and surgery, and the Hong-Kong school especially has been attended with considerable success. The teachers are unpaid; the medical men in the colony have for 14 years now given their services willingly and gratuitously, but as yet no Government aid has been given to support this eminently useful work. Ambulance work was taught in Formosa by Dr. W. W. MYERS, and in Hong-Kong a bearer section was inaugurated, equipped and maintained by Mr. CANTLIE from amongst the students of the College of Medicine. This bearer section was attached to the Hong-Kong Volunteer Artillery, and has done excellent work.

With these exceptions there are no medical schools in China. There are Chinese practitioners in plenty, but their knowledge and practices would afford material for a comic opera rather than for serious consideration. A plaster to mend a fractured leg; a live duck split up and applied to the skin for a poultice; duck's blood smeared on the temples, face, and neck to relieve fever and headache; and "dragon's" blood and deer's horn to cure leprosy are examples of the practice of medicine in China, with which is combined the burning of printed emblems purporting to beseech the Evil One to ward off illness and death. The medical missionaries from Great Britain and the United States of America have done a great deal of excellent hospital work in China; but it is perhaps unfortunate that the medical work has been accompanied in almost every instance by religious proselytising. There seems little reason to doubt the fact that the progress of medicine and, what is still more important, the progress of general education and science and even of civilisation, have been thwarted by the fact that the converts are in most instances tinged with conversion to a new religion. The young Chinese trained in medicine are almost all Christians, and the fact is deterrent to the advance of medical science amongst the Chinese. We believe that were science to be taught to the Chinese in a purely secular way Christianity might follow, but it seems impossible to civilise the Chinese by means of Christianity. The Japanese have become civilised irrespectively of Christianity. Encourage secular Western education and especially medical science in China, send Chinamen thus trained into every centre and town of China, and a leaven will be introduced and a diffusion of knowledge spread through the length and breadth of China which will in the near future bring many good things in its train—among others, we truly believe, a considerable conversion of Chinamen to Christianity.

WEDNESDAY, June 20th, 1900, should be a memorable day in the history of Newcastle-on-Tyne, for on that day the new Infirmary was opened. The men of the north do nothing by halves. When they work they work, and when the vast and varied industries of the neighbourhood cease they play with equal energy. The laying of the foundation-stone of the new Infirmary—one of the many outcomes of the Diamond Jubilee of QUEEN VICTORIA—by the PRINCE OF WALES was an occasion which called forth all their enthusiasm. The huge works of the district were closed, and the resources of the North-Eastern Railway

were strained to bring the population of the counties of Durham and Northumberland into the decorated streets of Newcastle.

The Royal Infirmary of Newcastle has always been a conspicuous institution of the district. For a century and a half it has existed and has been served by physicians and surgeons who have left their mark on the history of the various branches of the healing art, while the members of its present staff of officers have entered thoroughly into the spirit of modern surgery and medicine and fully keep up the reputation of their predecessors. The proof of this lies in the fact that they have neutralised to a great extent the evils inseparably connected with ancient structures, so that the results of the work done were as excellent as when the Infirmary was new. This is a happy omen for the future when the staff will be working in the new building the foundation-stone of which has just been laid in the name of QUEEN VICTORIA by His Royal Highness the PRINCE OF WALES. The ending of an old hospital and the creation of a new one by the employment of all that is best in modern hygiene and medicine are no light undertaking. The promoters of the scheme for rebuilding Newcastle Infirmary have been favoured by the generosity of the citizens of that town, by public respect for the institution, by the high reputation of the staff, and by the harmonious coöperation of the Mayor and Corporation with the committee and staff of the Infirmary. The movement in Newcastle has now received an immense impetus from its Royal associations. The personal popularity of the PRINCE OF WALES is only second to that of Her Majesty the QUEEN. The PRINCE OF WALES has achieved for himself the enviable reputation of being a friend of hospitals—which means the friend of many friendless and truly pitiable people whose sickness is complicated with poverty. We have not always agreed with all that has been done under the name of His Royal Highness for the good of hospitals, but it is impossible not to recognise his great interest in these institutions and his efforts to eliminate all that is objectionable in their administration and to make them wholly beneficent influences. So far it has been chiefly in regard to metropolitan hospitals that the benevolent labours of the PRINCE OF WALES have been exercised, but his Newcastle visit will show that he has an equal interest in provincial hospitals. The PRINCE OF WALES went through the onerous duties of the occasion in a perfect style, his clear, short, pointed speeches being models of public speaking for such purposes. Nothing seemed to be omitted, nobody was forgotten. Even when the programme was defective he filled in the gaps, for he noticed the absence of the name of the Mayoress from the toast list at the luncheon. The munificent donor of £100,000—alas, now dead—and the generous contributions of the working men, amounting to £20,000, were alike remembered. He made it clear, not only by his words but by his whole demeanour, that he was perfectly at home in promoting the erection of a new infirmary. They inadequately judge the PRINCE OF WALES who fail to note the strong elements of benevolence and common-sense which characterise his public actions not less than his public speeches. His influence and his example may be the very saving of our voluntary hospital system, and they have never been more happily or properly used than in his visit to Newcastle.

It is no detraction from all this praise to say that the PRINCE OF WALES made it clear throughout that he was really representing his illustrious—or as he preferred to say his "dear"—mother. The sensible community of Newcastle could well understand the various reasons in this eventful year why the QUEEN could not undertake this work in addition to all the exceptional duties which have devolved upon her. The loyal and affectionate words used repeatedly by the PRINCE OF WALES on this subject went straight to the hearts of those whom he was addressing; and they were as grateful to the QUEEN for nominating the PRINCE as they were to His Royal Highness for coming so gladly and for bringing with him the PRINCESS OF WALES and their daughter, PRINCESS VICTORIA.

THE application made recently in the Queen's Bench Division of the High Court of Justice in the case of Bynoe *v.* the General Medical Council revives a story which attracted some attention a few years ago of a medical practitioner who if he is not a cunning and persistent criminal is one of the most cruelly wronged and unfortunate of men. The subject of the application was Mr. C. A. BYNOE, a medical man practising in London who in 1892 was convicted of forgery at the Old Bailey before Mr. Justice CAVE and sentenced to nine years' penal servitude. The fact of his conviction was in due course brought before the General Medical Council and his name was removed from the Register. During his incarceration continual efforts were made by him and by his relatives on his behalf to establish his innocence, which he had always strenuously asserted. New evidence and arguments were laid before the Home Office, but that department declined to advise either a "free pardon" or an abbreviation of sentence. But now that Mr. BYNOE has served his sentence in full he still maintains his innocence and hopes to establish it. With this view he sought the aid of the High Court that the Court might by its order compel the General Medical Council to hear his application to have his name restored to the Register. Such a proceeding would, of course, involve the re-opening of the question of his guilt, the reviewing of the evidence given at his trial, and the hearing of the new evidence which he is now prepared to adduce in modification or contradiction of testimony which had told against him. This order the Court declined to make, Mr. Justice GRANTHAM saying that to do so would place the General Medical Council in the position of judge and jury in a most complex and difficult case. Mr. Justice CHANNELL said that the Council had a discretion to re-hear the case, but there was no duty upon them to do so, and therefore the Court would not grant a *mandamus*.

That the General Medical Council, had it undertaken or had it been compelled to hold the proposed inquiry, would have had an exceedingly arduous and difficult duty to perform will be gathered from the following by no means exhaustive story of the case. Mr. BYNOE and his mother previously to his conviction kept a boarding-house at 1, Endsleigh-gardens, while he

practised at a surgery in the neighbourhood. At this boarding-house at one time resided a Miss POTTS, a lady of private means and intemperate habits, and a Mr. KIRK, her friend. After both these persons had left the boarding-house letters continued to arrive for Miss POTTS which were not forwarded to her, and some of these contained warrants for the payment of dividends upon stocks and shares owned by her. Certain of the dividend warrants which came in this way to 1, Endsleigh-gardens, and which bore Miss POTTS'S name forged upon them were undoubtedly cashed by someone. Again, someone, presumably the same unscrupulous person, with considerable ingenuity wrote in Miss POTTS'S name to the companies issuing the warrants and stating that Miss POTTS had lost her certificates asked for duplicates of these documents to be sent to 1, Endsleigh-gardens, and forwarded the required indemnities. On these indemnities appeared the signatures of Miss POTTS and of her friend Mr. KIRK, both forged. The person who obtained the duplicate certificates also sold Miss POTTS'S holding in one of the companies, and to help him to procure an open cheque for the amount this person, a man, took a woman who personated Miss POTTS to the office of the outside broker who sold the stock. The cheque was given as asked for and was promptly exchanged for notes, while the notes were on the same day converted into gold. It was not denied by Mr. BYNOE that he knew of the dividend warrants and other documents coming to his house, and that more than one of the envelopes relating to Miss POTTS'S business had been opened there. He asserted, however, and, we believe, still maintains, that he forwarded all Miss POTTS'S correspondence, with the exception of a certificate found upon him (as to which he offered an explanation), to the care of Mr. KIRK at a club of which that gentleman was a member. Mr. KIRK appeared as a witness at the trial of Mr. BYNOE, Miss POTTS being then dead and he being her residuary legatee and executor. He denied having received any of the letters containing the dividend warrants. Beyond this it was proved at the trial that the prisoner was in more or less embarrassed circumstances. The secretary of the London and Universal Bank gave evidence of Mr. BYNOE having come to that bank on three occasions with relation to dividends of Miss POTTS. He professed himself, according to the witness, to be acting on her behalf and he obtained money for the warrants. The witness admitted no doubt as to Mr. BYNOE'S identity. The accused was further identified by two witnesses from the outside broker who sold the stock referred to and who saw him on two occasions with regard to payment for it; while two well-known handwriting experts gave their opinion that the documents said to be forged were written by the writer of documents which were acknowledged to be in the handwriting of Mr. BYNOE. (With regard to expert evidence of this kind it will be remembered that it is intended for the guidance of the jury, who, however, have the veritable documents before them, with every opportunity of forming their own opinions from the study of them.) In short, so strong was the case against Mr. BYNOE upon the depositions taken before the magistrate that the two very experienced counsel engaged to defend him—Mr. C. F. GILL and Mr. A. H. BODKIN—urged him to plead guilty. This he resolutely refused to do, maintaining that Mr. KIRK was responsible for the forgeries. In these circumstances Mr. GILL and Mr. BODKIN, without absolutely retiring from the case, remained in court and took no active part in it further, we believe, than making suggestions to Mr. BYNOE while he defended himself. This very unfortunate course, taken no doubt in consequence of the prisoner's determination to accuse Mr. KIRK of the forgeries, prevented the witnesses from being properly cross-examined. Mr. BYNOE was convicted, and the sentence passed on him quite possibly owed much of its weight to the endeavour to implicate an innocent man.

It will be seen from the above brief account of the case that Mr. BYNOE, if not guilty, was the victim of a most extraordinary combination of damnatory circumstances. It is, however, a fact that at his trial he endeavoured to influence the jury by producing an anonymous letter which he had received in prison, and which professed to come from the actual forger; while it is also a fact that a young woman is now in existence who states that she wrote that letter to Mr. BYNOE and that she personally wrote the forged signatures of Miss POTTS testified by the two handwriting experts to have been written by the prisoner and that she went to the broker's office and personated Miss POTTS. This young woman, who is of the humbler classes, declares that she committed the forgery ignorant of the import of her act, at the instigation of a man of whom she then was fond, who was not Mr. BYNOE and who has wholly disappeared; and the fact that she was at the date of the forgeries on friendly terms with a man answering to her description is borne out by her father. It is, apparently, the theory of those now interested on Mr. BYNOE'S behalf that the crime with which he was charged was committed not by Mr. KIRK, but by someone who had intercepted the warrants said to have been forwarded to Mr. KIRK. It seems clear that if this young woman had given evidence at the trial that she was the author of the forgeries the jury would probably have believed her and would have acquitted Mr. BYNOE; while if they had further believed that she personated Miss POTTS at the broker's office in company with a man not Mr. BYNOE (or if the evidence inspired them with doubt, which would have been sufficient) they would have also acquitted him of uttering the forged documents, knowing them to be forged. The matter at present stands as follows. Many persons in a position to judge, including, we believe, officials at the Home Office, are of opinion that the experts' evidence in the matter of the handwriting was wrong and misleading, and that the young woman was possibly the writer of the forgeries. What, however, the General Medical Council would have been called upon to decide was a much more complicated question, involving issues far too numerous and intricate to be given even in outline. They would have had to say whether Mr. BYNOE, who, on his own showing, must have acted with almost incomprehensible imprudence and want of good sense, had been the victim of a concatenation of compromising coincidences as well as of a foul conspiracy. It is impossible to express enough sympathy for a man who, albeit in consequence of his own unbusinesslike conduct, becomes the victim of such a crime—for the guilt, if Mr. BYNOE be innocent, must have been deliberately thrown

upon him. It is also impossible not to wish that if he be innocent facts entirely exculpating him and inculpating the real offender may speedily be made known to his friends and by them to the Home Office. It is, however, another matter to wish the General Medical Council to hold an inquiry into such a story, and to sift evidence, already sifted by the Home Office, with a view to either confirming or disagreeing with the decision arrived at by the Home Secretary and his advisers. It was a foregone conclusion that the High Court would not order the General Medical Council to undertake such a task, and we think that the Council have shown proper discretion in not acting upon their own initiative in the matter of rehearing the case.

Annotations.

"Ne quid nimis."

THE TREATMENT OF OUR SICK SOLDIERS.

MR. W. BURDETT-COUTTS, in the capacity of a special correspondent to the *Times*, has sent to that paper a lurid account of the inadequacy of the preparations made for the medical care and nursing of the sick in our large army in South Africa. The amount of sickness which has manifested itself in all our camps has for some time been the subject of serious consideration among medical men, for, as we had occasion to remark a fortnight ago, the lists of daily casualties demonstrate only too plainly that we have not yet solved the problem of protecting large bodies of troops from the ravages of such diseases as enteric fever and dysentery. Mr. Burdett-Coutts's letter will produce upon the public more than the impression that medical knowledge is at fault in the presence of certain problems of epidemiology. He has levelled an indictment against the War Office, the gist of which is that no proper arrangements of any kind have been made for the care of the large number of sick which should have been expected in an army of 200,000 men. Who is to blame and to what extent, as well as how far all the statements are accurate, will certainly be discussed by the public and we trust by Parliament; and we may be allowed to hope that the department which has covered itself with glory in all its arrangements for dealing with the wounded will have been found not to have broken down so completely as Mr. Burdett-Coutts believes in its management of the sick. Probably Mr. Burdett-Coutts is ignorant of the extent to which the Commander-in-Chief's lightning strategy has dislocated the plans of the Royal Army Medical Corps. One thing is certain: for the War Office to quote any eulogistic words of Sir William Mac Cormac and Mr. Treves uttered upon their return two months ago from the seat of war will be no complete answer to the charges. The experiences of Sir William Mac Cormac and Mr. Treves enabled them to express very definite opinions upon the treatment of our wounded in South Africa, upon the way in which battle-fields were stripped, and upon the heroism of many members of the Royal Army Medical Corps, but the vast epidemic of typhoid fever now prevalent did not come within their purview. But when Sir William Mac Cormac and Mr. Treves have spoken of the same things as Mr. Burdett-Coutts medical men will know who is the more likely to have the necessary equipment for giving us the truth.

WORKHOUSE OFFICIALS AT VARIANCE.

EXCELLENT indeed has been the result of the operation of the circular upon workhouse administration issued by the Local Government Board in the year 1895, reference to which was made in THE LANCET at the time and on subsequent occasions.[1] The common practice at that time in workhouses all over the country for paupers to be employed to perform the duties of nurses in the sick and lying-in wards, or in any other part of the workhouse, has been abolished, and paid and qualified nurses and assistants have succeeded them. But the Local Government Board also insisted on the appointment of a superintendent nurse who should have sole control over the infirmary wards. The matron was still to be the matron of the workhouse, not excluding the infirmary, and the result has been in not a few cases that there have been differences of opinion between the nurses on the one hand and the master and matron on the other. At the East Preston Workhouse in West Sussex a long series of complaints preferred by the superintendent nurse has recently been investigated by the guardians, who expressed the opinion that the friction was only what might be expected when the Local Government Board insisted on the guardians appointing two authorities in the workhouse. At all events, unpleasantness of this kind amongst officers does not conduce to the thorough discharge of their respective duties. All the officers concerned have been supplied with a copy of the guardians' report.

THE ACCIDENT AT SLOUGH.

MR. W. BRAMWELL BOOTH, writing to the *Times* of June 25th, makes a sensible suggestion—namely, that there should be a third man on the footplate of the engine of an express train who should act as look-out. Mr. Booth argues that an express train should, like a steamship, have a captain who should keep a look-out for signals and who should issue orders to the engineers—who, in short, should let the driver drive. This is to our minds an excellent suggestion and so simple that, like most simple things, it is a wonder that nobody seems to have thought of it before. Of course, it would cost money, but we are sure that no railway shareholder would object to a slightly diminished dividend if he knew that by that means increased safety would be afforded to the travelling public and a necessarily terrible strain taken off the minds of a very noble and arduously worked set of men. Only the innovation should be made compulsory, if made at all, upon every company. The custom of running past distant signals in the hope that the home signal will be clear, or if not that the breaks will pull the train up, seems far too common and should be severely put an end to. In this particular accident, however, there was no intentional running past the signals. The driver in his evidence stated that he never saw the signals and must have lost himself. Nothing can foresee or prevent these occasional failures of mental power. They happen to the greatest minds, as for instance, to Napoleon at Waterloo in the great cavalry attack.

THE EXPEDITION OF THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE TO BRAZIL AND THE UNITED STATES.

THE expedition which has been organised by the Liverpool School of Tropical Medicine for the purpose of investigating the causes of yellow fever in the United States and Brazil will have the coöperation of the British Government. The committee of the school have received an intimation from the Marquis of Salisbury that he had asked the British Ambassador at Washington and Her Britannic Majesty's consul at Pará to obtain all possible facilities from the United States' and Brazilian authorities on behalf of the expedition. It is also pleasing to find that official invitations to the expedition to

[1] THE LANCET, April 13th (p. 948) and May 25th (p. 1326), 1895.

visit Washington have been received from the heads of the Medical Departments of the United States of America, and to visit Baltimore at the instance of the authorities of the Johns Hopkins University. The expedition, which consists of Dr. H. E. Durham (Grocers' Research Scholar) and Dr. Walter Myers (John Lucas Walker Student), both of Cambridge University, sailed from Liverpool on Tuesday, June 26th, for Canada, and will proceed thence to Washington and Baltimore. After conferring with the bacteriological experts in those two cities the expedition will proceed to New York and will sail from that port to Parà, their subsequent movements being guided by circumstances. Advantage will be taken of the opportunity to test still further the work of the Liverpool school in malarial fever carried on by Major R. Ross, I.M.S., and also to prosecute the study of dysentery. A public meeting was held at the Exchange Buildings in Liverpool on June 25th, which was presided over by Mr. Alfred L. Jones, the chairman of the Liverpool School of Tropical Diseases, to consider "what action should now be taken to press upon the Government the necessity for the amelioration of the conditions of life in West Africa and other tropical countries by improved sanitation, better water-supply, segregation of Europeans, clearance of bush near towns, the introduction of light railways to the mountainous districts, and such other means as science may direct." A motion to this effect was carried unanimously in an influentially attended meeting. It was also proposed: "That the Liverpool Chamber of Commerce be requested to coöperate with the School of Tropical Diseases, and to ask the Government to receive a joint deputation on the subject." In the evening, on the invitation of Mr. Alfred L. Jones, a company of gentlemen sat down to a banquet at the Adelphi Hotel to do honour to the members of Liverpool's third expedition to the tropics who were about to sail for the Amazon. The toast of "The Yellow Fever Expedition" was proposed by the chairman and seconded by Professor Osler of Baltimore, to which Dr. Durham and Dr. Myers suitably responded. The chairman referred to the high esteem in which the late Miss Kingsley was held by West African natives and he suggested that the proposed hospital in Liverpool for the treatment of malarial diseases should bear her name. Mr. Jones generously offered to head the subscription list with a donation of £1000. Other subscriptions, amounting to £1200, were also promised towards the erection of the hospital. It is proposed to build the hospital on some waste land near the Royal Southern Hospital.

FATAL CASES OF PTOMAINE POISONING.

ON June 19th an inquest was held at Plymouth touching the death of Mabel Elizabeth Starling, aged 20 years. This was the second death in the family as alleged from the same cause. A week previously to her death the deceased with eight other members of the family partook of pork for dinner. Of these nine persons "eight suffered from symptoms of poisoning, two had died, and one escaped entirely. Mr. Starling suffered in the slightest degree; Mrs. Starling suffered severely, but the symptoms went off quickly. One son escaped for 24 hours. The other children were taken ill at varying periods of from two to four hours after dinner but recovered during the night." The family had partaken of fish (gurnet) for breakfast, but since none of them were affected until after dinner it may reasonably be concluded that the fish was not the offending agent. No other cases of persons who had eaten pork from the same carcass being attacked have been reported, and since there was direct evidence that the meat when delivered to the family was to all appearance fresh and good it would seem in the highest degree probable that it became subsequently infected with micro-organisms. It seems strange that a number of people who have eaten of the same poisonou article of diet should be affected so differently as re gards the period of onset of the symptoms, their degree of severity, and their duration. It must be borne in mind, however, that food may be poisonous in two ways: (1) from the direct irritant and toxic effects of animal alkaloids developed by the action of germs before the food is ingested; and (2) by the germs themselves setting up an infective process in the body and liberating during their culture the alkaloidal poison, just as in acute specific infective fevers. Writing on this subject Sir George Buchanan remarked: "The phenomena which were spoken of as food-poisoning are claiming an ever-growing evidence to be regarded as true infective diseases, as much so as was scarlet fever or tuberculosis. They have not been generally admitted into this rank (1) from the circumstance that some of them have seemed to be wanting in the incubation period, and (2) because they are rarely recognised as being transmissible from person to person." Thorough cooking kills the germs, but it does not destroy the animal alkaloids which they have formed. The poisoning is then a chemical one. On the other hand imperfect cooking fails to destroy the organisms, and so the individual is subjected to two influences—the developed alkaloid and the infective or fermentative process in his body. Now it is well known that the tissues, organs, and secretions of some people are more susceptible to the action of infective organisms than are those of others—"vulnerability," as it is termed—and thus it becomes abundantly clear why the results of implantation of the organisms should vary so extremely in different individuals. Moreover, as regards simple poisoning by animal alkaloids the effects will vary with the dose, with the empty or replete condition of the stomach, and with the rapidity with which the alimentary tract gets rid of the offending matter. Unfortunately, articles of diet—especially meat—which have become charged with animal alkaloids not seldom are free from noxious smell, and thus the warning given by the odour of putrescence is wanting. To avoid dangerous and even fatal consequences the meat should be examined to see that it is quite fresh and free from disease. It should be cooked early and thoroughly, and whilst kept in the raw condition it should be placed in healthy surroundings.

THE LECTURERS AND LECTURES AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND FROM 1810 TO 1900.

AMONG the various preparations which have been made in view of the now fast-approaching centenary of the Royal College of Surgeons of England a great many details of much historical interest will be found in a list of lecturers and lectures compiled[1] by Mr. Victor G. Plarr, the accomplished librarian of the College. The Hunterian Professors, by whom the "Museum Lectures" were delivered, have invariably been men of eminence in their respective subjects, and many of their discourses have been published in THE LANCET, the latest example being Mr. A. W. Mayo-Robson's three lectures on the Surgery of the Stomach, which appeared in our columns on the 10th, 17th, and 24th of March last. Surprising changes have occurred in the science and art of surgery and in most of the allied branches of knowledge since these lectures were instituted at the instance of the Government when the Hunterian collection was handed over to the College in the beginning of the present century. The first Museum Lecture was delivered on Feb. 13th, 1810, between which date and the following May 10th two courses of 12 lectures each were delivered, one on Morbid Parts and Surgery by Sir William Blizard and the other on Comparative Anatomy by Sir Everard

[1] Printed b Taylor and Francis, Red Lion-court, Fleet-street.

Home, Hunter's brother-in-law, assistant, and executor, who made use of Hunter's manuscripts committed to his care and afterwards burnt the originals. From that year to 1839 inclusive 21 courses of lectures on surgery were delivered successively by John Abernethy, Sir Anthony Carlisle, James Wilson, Sir Benjamin Brodie, Thomas Chevalier, Sir Charles Bell, George James Guthrie, Sir Henry Earle, and Frederick Tyrrell. A long interval then ensued, but in 1868 the lectures were resumed and have been delivered regularly ever since. The other division of the Museum Lectures—namely, the course on Comparative Anatomy—underwent fewer vicissitudes, and the able discourses of Joseph Henry Green, Sir Richard Owen, Thomas Henry Huxley, Sir William Flower, William Kitchen Parker, and others have worthily upheld the scientific position of British anatomists. Mr. Plarr does not confine himself exclusively to the Museum Lectures, but gives lists also of the Arris and Gale lecturers, the Erasmus Wilson lecturers, the Bradshaw lecturers, and others. His pages are of considerable interest to ourselves from his frequent reference to the use which he has been able to make of THE LANCET in tracing the details of the lectures in the first half of the century, and from his discovery that among the pupils, tickets issued in 1816 for Sir William Lawrence's course on Comparative Anatomy No. 144 G was assigned to Thomas Wakley, the Founder of THE LANCET.

PERFORATING ULCER OF THE DUODENUM.

THE *Boston Medical and Surgical Journal* of May 3rd contains an exhaustive paper on this subject by Dr. R. F. Weir. Summaries of all the reported cases (51) in which an operation has been performed are appended. The symptoms of a duodenal ulcer are, as shown by Schwartz, frequently very slight. In 20 out of 25 cases of perforation the patients had been apparently in good health or had been so slightly indisposed that they had not sought medical advice. In only five cases were there previously gastric symptoms. One patient was thought to be suffering from dyspepsia and two from gastric ulcer. The following are the usual symptoms of duodenal ulcer. The pain when characteristic occurs several hours after eating. It is situated just below the gall-bladder and may reach to the median line or to a level with the umbilicus. Frequently it is absent. Occasional pressure, particularly over the region to the right of the twelfth dorsal vertebra, elicits pain. Vomiting was present in 17 per cent. of the cases. It is of diagnostic importance if it occurs one hour or several hours after a meal. The vomited matter consists of disintegrated food which is often mixed with bile and blood. Jaundice is rarely present; it results from duodenal tumefaction or from cicatricial contraction of the orifice of the bile duct. Hæmorrhage occurs in about one third of the cases of non-perforating ulcers. Bleeding may take place from the mouth or rectum and may prove speedily fatal. The blood discharged by the bowel is usually tarry, but it may be of a bright hue. When perforation occurs great pain is usually felt in the epigastrium or to the right of that region. Occasionally it has been observed at the umbilicus and in the left side. Vomiting often follows the pain; it occurred in 28 out of 34 cases. Peritoneal symptoms rapidly develop with a tendency in some cases to be localised in the upper abdomen and on the right side, for fluids escaping from the duodenum flow at first between the liver and colon and thence along the ascending colon. In the diagnosis of perforation the situation of the early or initial pain in the right hypochondrium and the previous history of dyspeptic symptoms are of great importance. The treatment of duodenal ulcer is similar to that of gastric ulcer. If the diagnosis has been narrowed down to perforation of the stomach, duodenum, or gall-bladder, an incision from four to six inches in length should be made along the edge of the right rectus muscle, not reaching much above the edge of the liver. Dr. Weir recommends that this incision should be supplemented by a transverse one in its upper third, toward the median line, permitting division of the fascia covering the right rectus muscle, which latter is to be pulled to the left, exposing its posterior sheath and peritoneum, which are to be divided. A duodenal perforation is usually found on the anterior wall of the bowel. An attempt should not be made to excise the ulcer because this would occupy too much time. In seven out of nine of the successful cases only suturing was employed. Thorough cleansing of the peritoneum is important. If the extravasation is limited careful wiping of the affected portion of the peritoneal cavity is sufficient; irrigation is more suitable in extensive peritoneal inflammation. Tubes surrounded by gauze are the best drains. As regards the 51 collected cases the ulcer was recognised and closed in 25. In 13 operation was performed after 30 hours' delay and all were fatal; 12 patients were operated on immediately, of whom eight recovered.

INNOVATIONS AT THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

THIS society has recently resolved upon several very important alterations in its regulations for dealing with papers which in the matter of liberality are far in advance of anything that has yet been done by any medical society of the first rank. Authors of papers may now submit them to the Royal Medical and Chirurgical Society with the assurance that there is no probability of their being publicly discussed and afterwards returned as unworthy of a place in the "Transactions," for every paper accepted for reading is *ipso facto* accepted also for publication in the "Transactions." This is good, but the other alteration is even more important and shows that the present Council is determined that one of the principal aims of the society shall be carried out in the most liberal spirit. Every paper read before the society may be immediately afterwards, that is, before it has been published in the "Transactions," printed in any other medical or scientific periodical, and thus contributions to medical science, instead of being kept back, as hitherto, for 12 months and then published in the "Transactions" (the circulation of which must necessarily be limited), may be given to the professional world immediately through the medium of the medical journals.

THE HOUSING OF THE WORKING CLASSES.

WE have from time to time called attention to the prominence which is now being given to the problem of providing the poor of our cities with sanitary homes—a problem the complete solution of which seems in some cases almost hopeless. The Local Government Board has now addressed a circular to local authorities calling their attention to the Public Health Acts of 1875 and 1891 and the Housing of the Working Classes Act of 1890, and stating that the Board is preparing digests of the portions of these Acts dealing with this subject, which will be forwarded in due course. As the present system of drafting Acts of Parliament, which complicates them with cross references to other Acts already in existence, prevents any Act from being, by itself, a guide to those desiring to make use of its provisions, these digests will no doubt be extremely useful. Beyond promising these the Board of Trade circular contains a reference to the Bill now before Parliament which amends the portion of the Housing of the Working Classes Act that enables local authorities to build new dwellings for the working classes of their districts, but does not go further into this branch of the matter, owing, no doubt, to the fact that legislation on the subject is proceeding. The circular,

however, gives a full and instructive summary of the powers possessed by local authorities to inspect existing houses, abate nuisances, close houses where necessary, and procure the punishment of owners of insanitary premises, and in other ways to protect the poor within their gates; while by its language it emphasises the fact that the powers given to these authorities by statute do not only enable them to do certain things but impose upon them duties which they neglect if they do not acquaint themselves with their powers and proceed to act under them where anything exists to call for action. Acts of Parliament of this class, as we know—the Inebriates Act being an example which will occur to many—are not always acted upon with promptitude by local bodies, and as far as the Imperial Government is concerned circulars such as that before us constitute presumably the only method by which it can contribute to the enforcement of such Acts after it has once placed them on the statute-book.

THE HOWARD MEDAL OF THE ROYAL STATISTICAL SOCIETY.

THE next competition for the Howard medal will take place in the ensuing session of the Royal Statistical Society. The subject of the prize essay is "The History and Statistics of Tropical Diseases, with especial reference to Bubonic Plague." Essays must be sent in on or before June 30th, 1901, subject to the following rules:—

Each essay to bear a motto and to be accompanied by a sealed letter marked with the like motto and containing the name and address of the author; such letter not to be opened except in the case of the successful essay.

No essay to exceed in length 100 pages (8vo) of the *Journal of the Royal Statistical Society*.

The council shall, if they see fit, cause the successful essay, or an abridgment thereof, to be read at a meeting of the Royal Statistical Society; and shall have the right of publishing the essay in their *Journal* one month before its appearance in any separate independent form; this right of publication to continue till three months after the award of the prize.

The President shall place the medal in the hands of the successful candidate at the conclusion of his annual address at the ordinary meeting in November, when he shall also re-announce the subject of the prize essay for the following session.

Competition for this medal shall not be limited to the Fellows of the Royal Statistical Society, but shall be open to any competitor providing the essay be written in the English language.

The council shall not award the prize except to the author of an essay, in their opinion, of a sufficient standard of merit; no essay shall be deemed to be of sufficient merit that does not set forth the facts with which it deals—in part, at least, in the language of figures and tables; and distinct references should be made to such authorities as may be quoted or referred to.

Further information can be obtained from the assistant secretary, Mr. B. W. Ginsburg, at the office of the society, 9, Adelphi-terrace, London, W.C.

THE CAUSE OF CARIES OF THE TEETH.

IN a recent publication[1] Dr. Sim Wallace has advanced an ingenious theory to account for the increasing prevalence of dental caries. His views are as follows:—"The cause of the prevalence of dental caries is that the natural food-stuffs are to a large extent riddled of their accompanying fibrous parts and prepared and consumed in a manner which renders them liable to lodge and undergo acid fermentation in the mouth, while from this same cause and the induced conditions the micro-organisms of the mouth lodge and multiply and augment the rapidity and intensity of the acid fermentation." That the preparation of our food-stuffs may in some small measure assist in the production of caries seems possible, but that it is "the cause" is highly improbable. Much of Dr. Wallace's reasoning is unsound and many of his statements are incorrect. He crosses arms with those investigators who maintain that the teeth are degenerating in some unknown way and so are unable to resist the action of the acids set up by fermentation in the mouth. He prefers to hold the view that the cause is to be found in the food-stuffs being prepared in a manner which makes them more apt to lodge in the mouth, and he makes the statement, quite unsupported by any data, that the "teeth of the present day are as perfectly formed from a chemical and microscopical point of view as are the teeth of those races which are practically free from caries." That the structure of the tooth plays a most important part in the resistance to caries is within the knowledge of a dental practitioner with even a small experience. For example, in mouths where there is but a slight amount of caries, and that slow, the enamel of the teeth is generally hard and resistant to the instrument, while where caries is prevalent and rapid the reverse is the case. Indeed, it requires but little observation to show that there is something, so far not recognised or understood, which plays a most important part in the liability of teeth to be attacked by caries. Crowding of the teeth is a fruitful predisposing cause of caries and this is acknowledged by Dr. Wallace, but he attributes the crowding to want of development of the tongue from lack of fibrous material in the food-stuffs. The removal of this fibrous material from the food stuffs robs the tongue of a certain amount of activity and so interferes with its development. Here, again, as with nearly all his statements, no data are given in support of his contentions. The true cause of caries has yet to be discovered and is not quite so simple as Dr. Wallace would lead us to believe.

[1] The Cause and Prevention of Decay in Teeth. London: Messrs. J. & A. Churchill.

AN UNQUALIFIED PLAINTIFF UNDER THE MEDICAL ACTS.

A CASE heard recently in the Stourbridge County Court seems to have raised a question under the Medical Act of 1858 arising out of circumstances not contemplated by those who framed the statute. The plaintiff suing for fees for medical attendance was not a registered medical man. He was a medical student who while pursuing his studies had employed a qualified practitioner to keep alive the practice which he (the student) had inherited from his deceased father. The fees, therefore, had been earned by a qualified man but the person bringing the action was not on the Register, and the Act above referred to says that "no person shall be entitled to recover any charge in any court of law for any medical or surgical advice ..... unless he shall prove upon the trial that he is registered under this Act." This seems fairly explicit, but the Act was, according to its preamble, passed in order that "persons requiring medical aid should be able to distinguish qualified from unqualified practitioners," and the intention of the legislature was no doubt primarily to hinder unqualified persons from holding themselves out to be medical men and exercising medical functions. There is no direct authority as to what is to happen where a duly registered medical man has earned the fee and a lay employer has sued for it, but there can also be no very strong reason why the section we have cited above should not be construed literally in such a case. It is possible that those who passed it may have intended to stop by it any intervention whatever by laymen in matters connected with medical practice, while perhaps they contemplated a system of laymen farming the work of qualified medical men which might otherwise arise. In the case at Stourbridge no decision was given on this question by the county court judge, as he pointed out that should he decide it in the defendant's favour the only result would be that the qualified medical man would sue instead of the then plaintiff, and the objection was accordingly dropped. A case, however, might well arise in which, owing to some dispute between employer and employed, the man who had earned the fee might not be willing to aid in recovering it, and even if such a state of affairs as we have described may not

be likely to occur frequently we should have liked to see the law on the matter clearly laid down.

ANTI-STREPTOCOCCIC SERUM IN CEREBRO-SPINAL MENINGITIS.

WE learn that in an epidemic of cerebro-spinal meningitis at Jerusalem 12 patients were treated with Marmorek anti-streptococcic serum and all recovered. In a disease so fatal as cerebro-spinal meningitis it is allowable to employ any treatment in reason even though there is not much probability of its success. We must confess that *a priori* we should not have imagined that anti-streptococcic serum would have proved efficacious against an entirely distinct micro-organism such as that giving rise to this form of epidemic meningitis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: MEETING OF FELLOWS.

THE annual meeting of Fellows will be held next Thursday, July 5th, at 5 P.M., and it is desirable that a quorum should be present, otherwise it is possible that these meetings of Fellows may be discontinued altogether. Already one meeting a year has been done away with and no quorum has been obtained since July, 1897. The agenda paper includes three motions by Mr. R. B. Anderson relating to various matters of interest. We may mention also that the additions to the museum during the past year will be on view in the Council Room on July 3rd, 4th, 5th, 6th, and 7th.

VACCINATION FEES AT BURY.

AT the meeting of the Bury Board of Guardians on June 7th the reply of the Local Government Board to a letter from the guardians as to the fees payable to the public vaccinators was read. The principle on which payment is made is stated to be that "their remuneration should mainly depend on the fees which they received for successful vaccination," so as to give every inducement to promote, as far as possible, the vaccination of all children. Under the new system of domiciliary vaccination the board introduced the fees provided for under article 3 (1) (2) of the Vaccination Order of 1898. "The board decided that while the former should not be less than 1*s.* per case it should not exceed one-third of the fee payable for each case of successful vaccination." The guardians decided to pay 1*s.* 8*d.* and 5*s.*

CHOREA: A STATISTICAL AND CLINICAL STUDY.

PROFESSOR ALLEN STARR of New York contribu'es a valuable paper on the above subject to the volume of the *Festschrift* in honour of Dr. Abraham Jacobi, just published (May, 1900), analyses the histories of 1400 cases of chorea seen in the Vanderbilt Clinic. The proportion of females compared with male patients was almost exactly as 2 to 1, and it appeared that the disease was relatively common among children of the poorer classes and was often accompanied by anæmia. The most constant physical condition accompanying the disease was malnutrition. Among etiological factors preceding the disease fright was noted in 285 cases, and a history of acute rheumatism in 290. Organic cardiac murmurs were observed in 175 cases and functional or hæmic murmurs in 123 cases. In 871 patients no cardiac murmurs could be found. As regards age, 919 cases, or 65 per cent., occurred between the ages of seven and 14 years. As regards seasons, it was recorded that 707 out of 1129 cases occurred between March and August. The choreic movements were general in 951 cases and unilateral in 449, the right side being affected slightly more than the left. Mental changes were observed in 827 cases in the form of irritability combined with more or less dulness, and speech was affected in 556 cases. Therapeutically it appeared that arsenic given in increasing doses and pushed to its physiological limit gave the best results. The dose had to be reduced slightly after this. Antipyrin was also used with favourable results, but very little benefit was obtained from exalgin, paraldehyde, phenacetin, or the bromides. A change of air to counteract the anæmia and to add freshness to the patients' surroundings was attended with the most beneficial results.

THE INTERNATIONAL MEDICAL CONGRESS, PARIS, AUGUST, 1900.

ALL members of the profession, including ladies and dentists, who wish to become members of the Thirteenth International Medical Congress are requested to send in their names by return of post to the secretaries of the National Committee for Great Britain and Ireland (Dr. A. E. Garrod, 9, Chandos-street, Cavendish-square, London, W., and Mr. D'Arcy Power, 10A, Chandos-street, London, W.). The list of members in Paris will close on July 15th, and after that date it will be impossible to guarantee any of the privileges of the Congress to those who send in belated applications. A ladies' committee has been formed under the auspices of Mesdames Lannelongue and Brouardel and a convenient room has been placed at their disposal. The list of entertainments is completed by the announcement of a grand fête to be given by the Town Council of Paris in the Salons of the Hôtel de Ville on the evening of August 7th.

THE WATER-SUPPLY OF MANCHESTER.

THE water-supply of our towns becomes more and more difficult as the population grows, and where it is abundant to-day there is anxiety as to to-morrow. This is illustrated by the history of the Manchester supply. When the Longdendale reservoirs were completed it was thought that the provision made was practically inexhaustible, but after a time it became evident that more than the 25,000,000 gallons which it now gives would be wanted, so the Thirlmere scheme was gradually worked out and one pipe laid, when for a time there was the pleasant feeling of abundance and security. Since that day, however, there has been, according to the report of the Waterworks Committee which is to be submitted to the Council at their next meeting, "a very excessive increase in the consumption." The committee wish the public to get rid of the idea that there is "an exhaustless supply for all time," to avoid waste, and to practise a reasonable economy in the use of water. The present consumption is about 32,000,000 gallons per day, "and the increase during the last 10 years has been at the rate of over 1,000,000 gallons per day per annum." With the additional pipe which it is proposed to bring from Thirlmere it is calculated that the total quantity obtainable from that source will be 50,000,000 gallons daily, which with the Longdendale supply is estimated to make up 75,000,000 gallons per day. With the increasing growth of habits of personal cleanliness which are gradually permeating through the population from above downwards there is a much greater demand for water for domestic purposes, including the supply for baths which are now common in Manchester in small "weekly" houses, as they are called, than would have been dreamt of 50 years ago. The committee have come to the opinion that at the rate of increase for the last 10 years and allowing for the growth of the population "the whole 75,000,000 gallons per day is likely to be overtaken in about 35 years. They therefore feel it their duty to make this emphatic statement so that all citizens and consumers may realise their personal responsibility for the proper and moderate use of the water." While it is absolutely necessary to give water to the towns it ought not to be forgotten that many country places all

through the island suffer from a chronic water famine and means will have to be taken for their relief.

THE MIDWIVES BILL.

THERE was a debate, which will be found fully reported in our columns on p. 1920, in the House of Commons on Wednesday evening last upon this measure. Mr. Griffith-Boscawen moved that the Bill be considered upon that day three months on the grounds that it had been inadequately discussed on its second reading and rushed through the Standing Committee. Colonel Milward, in seconding the amendment, thought the measure too drastic. Sir J. Batty Tuke, in a successful maiden speech, approved the general lines of the Bill, though he considered that it should be amended in certain particulars. Dr. Farquharson thought the measure had been sufficiently discussed, but Sir Walter Foster urged postponement, pointing out that the measure should be dealt with by the Government of the day, the question involved being too large to be dealt with by a private Member. While Mr. Heywood Johnstone was falling in with this view 5.30 o'clock was reached and the debate stood adjourned—probably for the rest of the session, as Government has taken all the available time.

THE DEARTH OF MEDICAL ASSISTANTS AND ASSISTANT CURATES.

THE *Westminster Gazette* states that a vicar in the Midlands recently applied to five theological colleges for an assistant curate in priest's orders and was unable to obtain one. In our own profession the dearth of assistants has of late years become very marked, but there are obvious reasons for this. First comes the action of the General Medical Council in forbidding the employment of unqualified men, and this is an influence which will abide. Secondly, the war in South Africa has absorbed numerous younger members of the profession who would in all probability be holding assistants' posts if they were not engaged in minimising the necessary horrors of war. The reasons for an ecclesiastical scarcity are not so obvious. Possibly ideals are higher nowadays than they were 60 years ago and the class of man who used to take orders because it was a calling which carried with it a certain social position and a comfortable income has become smaller. Perhaps, too, the fact that the comfortable income has become smaller has something to do with the matter. But however this may affect the average assistant curate whose field of labour is a country parish we fancy that town incumbents who live with their assistants in a clergy house find no difficulty in getting men willing to live and work with them without any thought of the amount of their salary, provided that they are fed and have fairly comfortable quarters.

SMALL-POX AT STALYBRIDGE AND SALFORD.

IT may be remembered that small-pox was taken to Stalybridge on April 28th by a man returning from Russia. Up to June 6th there had been 18 cases and three deaths. The first death was that of the man who introduced the disease and the other two were those of two boys who were unvaccinated. A sub-committee of the Town Council has been appointed to consider the question of providing an infectious diseases hospital and to deal generally with all matters of emergency relating to persons suffering from small-pox. It appeared, the mayor said, from inquiries he had made, that small-pox was not subject to the quarantine laws, which only applied to cholera, to plague, and to yellow fever. He suggested "that action should be taken with a view to bringing small-pox within the operation of the quarantine laws." It was decided that the mayor, the town clerk, and the medical officer of health should go as a deputation to the Local Government Board "with a view to get the matter dealt with in an omnibus Bill at the end of the session." Salford also has had an outbreak of small-pox. Recently Mr. C. H. Tattersall, the medical officer of health, reported that five cases had been brought under his notice. Prompt measures had been taken to check the spread of the disease. So far Manchester has escaped.

THE PROPHYLAXIS OF PLAGUE.

La Salud, a monthly review of hygiene published at Buenos Ayres, contains in its March number an interesting article upon plague. Formerly, says *La Salud*, according to a tradition common amongst certain tribes of South-American Indians, wide-spreading fires used to sweep over the land. The inhabitants were in the habit of taking refuge in caves and dens of the earth. From time to time they poked out the branch of a tree and if this when pulled in again showed no signs of burning they considered it safe to come out. So formerly when plague ravaged and desolated various countries the inhabitants shut themselves up in the cave of isolation and did not come forth until they learned that plague had disappeared. Nowadays, however, just as the Indian tribes possess herds of horses which they did not formerly possess and are able by these means to stamp out pampas fires, so that there is no need to take refuge in a cave, so also modern cities possess hygienic knowledge and conditions which render isolation unnecessary and a general dissemination of plague throughout Europe or America is as impossible as a fire which should affect the whole pampas. In India and in China only those persons succumb who live under grossly unhygienic conditions. With reference to the recent outbreak of plague in the Argentine the article continues: "It would be greatly to the honour of the Argentine Republic if she would invite other countries to a conference to consider the question of meeting plague, if not actually by abandoning all international action yet by leaving commerce perfectly free and by treating the disease wherever it appears exactly like any other infectious disease which assumes endemic characters."

TICK FEVER IN NEW SOUTH WALES.

DR. FRANK TIDSWELL, Principal Assistant Medical Officer to the Government of New South Wales, has issued a second report upon Tick Fever. This report, which is dated February, 1900, is really a continuation of his first report which was dated December, 1898, and upon which we commented in our issue of May 6th, 1899, p. 1240. The first report dealt with the immediate effects of protective inoculation and the second takes up the tale and gives an account of the result of exposing an inoculated herd to the influence of ticks. The experiments were made at Greenfell, Rockhampton, in Queensland, a district seriously affected with ticks. The total number of animals used was 60—namely, 22 inoculated and eight controls from New South Wales, and 20 inoculated with 10 controls from the North Coast District. Of the inoculated animals five escaped entirely and eight died, but although these eight may be said to have died from causes incidental to their exposure to ticks none of them could be said to have died from tick fever *per se*. Among the control animals eight died, four from acute tick fever, one from debility following tick fever, and three from causes incidental to their exposure. As a rule, the symptoms were much less severe in the inoculated than in the control animals, although in six of them the disease was nearly as severe as in the control animals, and of these six four died, three of which were, however, old and unhealthy to start with. Dr. Tidswell concludes that the main line of defence lies in keeping the ticks out of

the colony, but inoculation may be of great service, for it does not involve permanent ill health; inoculated animals resist second inoculation attacks and, as was seen by the experiments, they take the fever much less severely than does an uninoculated control. Careful dipping is of great use. With regard to the selection of blood for inoculation its infectivity does not depend upon controllable factors. The blood of one animal will give good reaction 12 months after inoculation, while that of another will be useless shortly after three months.

THE FIRST PRINCIPAL OF THE UNIVERSITY OF BIRMINGHAM.

IT is announced that Oliver Joseph Lodge, F.R.S., LL.D., D.Sc., has been appointed the first principal of the new University of Birmingham. It is difficult to know whether to congratulate most the new principal upon the honour so rightly offered to him or the new University upon his acceptance of the post, but that both parties to the transaction are to be felicitated there can be no doubt. Dr. Lodge was educated at the Newport (Salop) Grammar School and at University College, London. In 1877 he took the degree of D.Sc. at the University of London, gave lectures on physics at the Bedford College for Ladies, and was appointed Assistant Professor of Physics at University College, London, where, during Professor Clifford's illness, he took charge of his classes. In 1880 he was appointed Professor of Physics at the then newly-established University College, Liverpool. He has written upon Electricity and Light, and his "Modern Views on Electricity" is perhaps the clearest account of a by no means easy subject which has appeared up to the present time. He has also made researches into the nature of lightning and lightning discharges and has also written upon Herz and his work. Apart from the more purely scientific subjects Dr. Lodge takes a deep interest in those somewhat obscure phenomena known as psychic. He is a prominent member of the Psychical Research Society and was one of those appointed to examine into the phenomena presented by Eusapia Palladino.

THE FAMINE AND SPREAD OF CHOLERA IN INDIA.

THE events taking place in China and in South Africa, to say nothing of those on the West Coast of Africa in the relief of Kumasi, occupy such a prominent place at the present moment as to absorb almost exclusively all public thought and attention. It is natural that it should be so, but the lamentable loss of life and the suffering entailed by these events are really insignificant compared with the truly deplorable state of affairs in India at the present time as set forth, for example, in a communication from the special correspondent of the *Standard* of June 26th. India has of late years been a prey to all the ills that can afflict a country. More direct and terrible even than the fear of starvation is the fear of cholera, and we are confronted with the sad and remarkable spectacle that the unfortunate and starving natives are being driven from many famine relief centres by the dreaded scourge of cholera in order to meet their end in a slower and less agonising way than that disease often causes; whereas in all the districts of India wherein cholera has not appeared distress compels them in increasing numbers to seek and hold on to the famine relief works as their only chance. Nor is this all. The want of water and the fear of a water-famine, the enormous mortality amongst both man and beast, and the extreme poverty and increasing enfeeblement of the native population make up an appallingly realistic picture of human suffering. The condition of the Rajput States, of the Bhil country, and of Jodhpur State, where over a million beasts have died from starvation, and of other extensive parts of India is simply terrible.

SIR WILLIAM GAIRDNER was entertained at dinner in Glasgow on June 19th with many evidences of sympathy and enthusiasm, the occasion being his retirement from his professorship in the University. The company numbered about 140, Principal Story, of the University, being in the chair. Sir William Turner, replying to the toast of "The Medical Profession," which had been proposed by Sheriff Berry, stated in the course of his remarks that after Sir William Gairdner had withdrawn from his duties as professor in Glasgow University he (the speaker) would take his place as the oldest teacher in a Scottish university, 40 years having elapsed since he commenced to teach anatomy in Edinburgh University. Sir William Gairdner, replying to the toast of his health, proposed by Principal Story, said that his arrival in Glasgow marked almost to a month the middle point of his life. He was 38 years of age when he became a professor and he had lived for 38 years afterwards. If he put to himself the question whether the former or the latter 38 years were more fraught with real happiness he should be puzzled to give an answer, but on the whole he thought he should prefer the latter period. The toast of "The Lord Provost and Corporation of Glasgow" was proposed by Sir Hector C. Cameron and acknowledged by Lord Provost Chisholm.

IT has been found convenient to postpone the Malaria Conference which it was proposed to hold in Liverpool at the end of July, the centenary celebration of the Royal College of Surgeons of England and other events in the medical and scientific world having been arranged for the same time.

SIR WILLIAM BROADBENT will formally open the new Clinical Museum at the Medical Graduates' College on Wednesday next, July 4th, at 8.30 P.M., when Professor Osler, F.R.S., of Baltimore, will deliver an oration on "The Teaching of Practical Medicine."

THE Guy's Hospital Biennial Dinner will be held at the Whitehall Rooms, Hôtel Métropole, on Friday, July 6th, at 6.30 P.M., under the presidency of Mr. Charles Higgens.

THE WAR IN SOUTH AFRICA.

THERE is still a pause in Lord Roberts's operations, for what has been recently taking place, although of a sufficiently stirring nature, is not likely to have any serious influence on the course of events. Notwithstanding that the Boer forces have exhibited unwonted activity of late and have had some successes the campaign is slowly but surely coming to an end—if it has not virtually already done so. General De Wet is commanding, however, with remarkable skill and success in his operations against our lines of communication between Kroonstad and the Vaal river. If it be true, as is reported of this Boer general, that he declared he would make Lord Roberts repent of having refused to accept his terms of surrender, he has done a good deal to justify his threat, for his force, owing to its astonishing mobility, has of late been apparently ubiquitous. A recital of the raids, surprises, and exploits of General De Wet reads like an exciting chapter in a book describing the adventures of some notable guerilla chief. By his energy and enterprise he has damaged the railway about Rhenoster river, captured the Derbyshire Militia, inflicted considerable loss on the Devonshire Militia, attacked a post at Honing Spruit and burned three wooden bridges, and succeeded in capturing several convoys with their wagons, stores, and ammunition, including one sent to the Highland Brigade.

It was at the last-named engagement that Colonel Bullock of the Devon Regiment, undaunted by his previous experiences, behaved with such stubborn pluck and that Mr. Lenthal Cheatle, who happened to be present in the train, had the opportunity of rendering very important services to the wounded. It will naturally be the first aim and object of Lord Roberts to see whether he cannot put an end to this eventful history by cutting off and capturing this force and its wily leader. We may confidently expect to hear soon of some active, and, let us hope, decisive, movements on the part of the British forces in the Transvaal.

So far for the military situation at the present time. Turning to the medical history of the war we may briefly allude to a communication which appeared in the *Times* of June 25th descriptive of the experiences of Dr. Morris Martin with General Cronje and the Boer forces until he obtained permission to go to Delagoa Bay, where he seized an opportunity for making his escape to this country. As the communication gives a description of what was going on behind the scenes with the Boers whilst the war drama was actually taking place it is worth reading.

The health of the British troops as a whole is stated to be good and their spirits are all that could be desired. There is still, however, a terrible amount of enteric fever prevalent among the army in the field and also (although to a far less extent) dysentery, together with many cases of pneumonia and diseases of the respiratory organs. A very large number of men are in hospital at Bloemfontein suffering from enteric fever. Large batches of sick and wounded are arriving from time to time in this country and reinforcements are in like manner being sent out to South Africa with *personnel* and *matériel* for the various hospitals, military and otherwise. According to a return just issued by the War Office the total losses since the beginning of the war up to the end of last week (exclusive of sick and wounded men now in British hospitals in South Africa) amounted to 26,296. The details are as follows:—

	Officers.	Non-commissioned officers and men.
Killed in action	250	2384
Died from wounds	63	589
Missing and prisoners (excluding those who have been recovered)	27	1600
Died from disease	125	3885
Accidental deaths		66
Sent home as invalids	734	16,358
Total	1284	25,032

We notice that according to a communication from the special correspondent of the *Standard* at Cape Town, dated June 25th, it is alleged that during the last few weeks there has been a growing feeling of dissatisfaction on the part of both the public and the patients with the way in which the military hospitals and convalescent wards are being managed. The whole matter was discussed at a meeting of the Good Hope Society for the Aid of the Sick and Wounded. The Archbishop of Cape Town brought forward statements in regard to Rosebank Hospital to the effect that invalids were insufficiently supplied with warm clothing, while other statements were made that the food was insufficient in some cases, and in others of a nature unsuitable for patients suffering from dysentery or enteric fever. The Archbishop brought forward a motion drawing the attention of the military authorities to the great neglect in the supply of proper clothing and food, but subsequently withdrew it on a representation that the matter would be given full publicity in the press. The Rev. Mr. M'Clure urged that a report should be drawn up, contending that those found responsible for neglect should be very severely dealt with. The matter has been left in the hands of a committee, and the Archbishop of Cape Town is stated to have apologised for having made statements founded upon erroneous information. We must be content to suspend our judgment until the result is made known.

We have referred elsewhere to the communication from Mr. W. Burdett-Coutts, M.P., which appeared in the *Times* of Wednesday, June 27th. The accuracy of Mr. Burdett-Coutts's statements will be tested immediately.

WITH THE IMPERIAL YEOMANRY HOSPITAL.

(FROM A SPECIAL CORRESPONDENT.)

The winter has come upon us now with its black frosts. The days are much colder than on our arrival at Deelfontein, when the most comfortable uniform was merely a flannel shirt and trousers without any coat. Now the medical officers are often glad to make their rounds in top coats as well as to wear their warm winter underclothing. Life in tents has its drawbacks and one often longs for a more stable edifice in which a blazing fire could warm one's half frozen hands and feet. Although the thermometer does not register any great degree of cold the wind seems much more piercing here than in England, and one never feels warm unless the sun is shining brightly. At night black frosts occur, the absence of white hoar frost being due to the extreme dryness of the atmosphere, and we occasionally find that the water for our morning tub is covered with a layer of ice a quarter of an inch thick. It requires some amount of determination to take a bath in water like this and when exposed to a biting wind. The rainy season has been an exceptionally long one this year, and only last week very heavy showers fell for three days. These rains are very heavy while they last and are as a rule accompanied by thunder and lightning.

The general health of the hospital encampment remains good and the patients still continue to pick up their former health, and in some cases with an astonishing rapidity. So far, with one exception, none of the sisters has fallen seriously ill. Apart from minor ailments, such as sore-throats or toothache, their bill of health is a clean one. We all regret that one of the sisters, who was suffering from necrosis of the superior maxilla when she started from Scotland, has since been invalided home.

A few cases of scarlet fever have occurred in the camp, but by the most careful isolation Dr. J. W. Washbourn has been enabled to prevent its spread. The origin of the scarlet fever was found to be a patient who came from Naauwpoort Hospital and who was found to be "peeling" after having suffered from a sore-throat a week or two before. He passed the infection to the orderly who was attending the sick in the hut in which he was located, and one or two patients and orderlies have also since caught the infection. This has entailed considerable trouble and has necessitated the disinfection of the tents and huts in which the cases were discovered, together with the transference of the patients to other huts during the disinfection. Colonel A. T. Sloggett, R.A.M.C., has also arranged for two small separate encampments, one where the cases of scarlet fever are nursed and a second one where the men who have been exposed to infection can be put into quarantine. By these methods the disease has been stamped out and only a very few cases have occurred.

Of more serious import is the occurrence of typhoid fever and dysentery amongst some of the medical staff and a few of the orderlies and patients. Dr. R. T. FitzHugh[1] and Mr. Greenfield and Mr. Hobart, the store-keeper, are down with enteric fever, and one misses them sorely, for Dr. FitzHugh was acknowledged to be the best singer in the camp. His comic songs were unequalled and at every concert "We 'ad a roarin' time" was eagerly called for. Whilst one regrets that cases of these diseases should arise within the camp itself one must realise the immense difficulty of treating 300 or 400 patients suffering from typhoid fever and absolutely preventing any spread of infection when any single piece of soiled linen or any one patient can spread the disease indefinitely if any neglect of rules occurs.

All the huts are now completed and we have about 700 patients in the hospital at the present time. The camp is assuming the appearance of a small model village with its level well-kept streets, plainly marked out with a continuous row of whitewashed stones on each side of the roadway. 70 more tents are to be sent up from Cape Town and they will afford accommodation for 500 more patients. The medical cases far exceed in number those of a surgical nature and several of the surgical officers are giving assistance on the medical side of the hospital. The number of medical cases is larger for two reasons, chiefly because owing to the small amount of resistance offered by the Boers there have been very few casualties on our side lately, and also because convalescence in medical cases is a longer business than it is in surgical ones.

[1] We regret to say that Dr. R. T. FitzHugh, to whose illness our correspondent alludes above, died on June 15th, as announced in our last issue, p. 1830.—ED. L.

At present nothing very definite has been arranged by Colonel Sloggett, but it has been suggested that another branch hospital should be started. At first Surgeon-General W. D. Wilson, the principal medical officer, thought that the most suitable place would be at Kroonstad, but now, owing to our rapid advance and the occupation of Johannesburg and Pretoria by the Imperial forces, the necessity for a hospital there has disappeared. For strategic reasons it is now far more likely that Pretoria would be the more appropriate site for an advanced hospital, but it is quite possible that Maitland may be chosen in the hope that the staff of the Imperial Yeomanry Hospital may be able to be as near as possible to the probable camp of the Yeomanry forces when they collect again at Cape Town on their way home.

On the medical side of the hospital there are practically three diseases in evidence—typhoid fever, dysentery, and rheumatism. The hardships of campaigning without shelter against the rain and cold biting winds and with insufficient rations seem to have played a most important rôle in the etiology of dysentery and rheumatism. In many cases it is found that an attack of dysentery commenced after a soldier had been exposed without tents for three nights to wet weather, being obliged to allow his clothes to dry on him during the next day's march. This exposure may lower the vitality of the intestines and so render the man more liable to infection with the amœba of dysentery which would be repeatedly drunk in the dirty water with which he had slaked his thirst on the march.

A typical case of dysentery begins with a little diarrhœa, three or four motions on the first day, and with little or no rise of temperature. The number of motions on the second and third days reaches from 10 to 40 or 60, according to the severity of the case, and large quantities of red blood and mucus are passed, although each evacuation may be only small in amount. In untreated cases and in cases which resist treatment the diarrhœa increases until the patient requires the bed-pan almost continuously. There is severe abdominal pain and much rectal straining and discomfort. The stools are often very offensive and in older people may give rise to a suspicion of cancer of the rectum. The spleen is sometimes slightly enlarged in dysentery and may cause difficulty in excluding suspicions of typhoid fever. We have had no cases of abscess of the liver resulting from dysentery so far. The temperature chart is more or less typical and its variation may be given from an actual case which was proved by post-mortem examination to be one of dysentery. The temperature rises each evening about a degree until a temperature of 101° or 102° F. is reached and falls each morning, sometimes to normal, then a period occurs in which the temperature is about 101° each evening and normal in the morning. As the patient improves his temperature again gradually falls in the evening until the normal temperature is reached and maintained. Should chronic diarrhœa persist the temperature generally registers 99° in the evening. The temperature does not always vary with the severity of the diarrhœa. The treatment adopted is to give large doses of powder of ipecacuanha, from half a drachm to one drachm at a time for several doses, every four hours until the bleeding and diarrhœa stop, and then to continue with opium and bismuth. Great care is required in this treatment to prevent obstinate vomiting. It is advisable to keep the patient in bed and to give from 15 to 30 drops of laudanum by the mouth in a little water an hour before each powder, and also to administer a very little plain milk only whilst the ipecacuanha treatment lasts. It is of the utmost importance to commence the treatment early and to give large doses of ipecacuanha, as if the diarrhœa once becomes almost continuous nothing seems to be of any assistance to the patient and he gradually sinks and dies. His pulse fails, and in a few days his condition becomes most wretched. Continuous and uncontrollable diarrhœa quickly emaciate him, his appetite goes, he is listless and apathetic, and may have lost full consciousness of what is going on around him. He becomes a misery to himself and to those who attend on him. Rudyard Kipling well describes dysentery as the disease "which eats the heart out of a man." No improvement seems to take place in the amount of diarrhœa for the first 24 hours after the commencement of the ipecacuanha treatment but the patient is much more comfortable and blood is generally passed in smaller quantities. The treatment with sulphate of magnesia and sulphate of soda has also been tried. It seems useless unless the treatment is begun quite early, and as it is also apparently very exhausting and depressing it is advisable not to try it in the last stages of the illness. Young, robust men stand it best. Drachm doses of these drugs are given every hour or every two hours, and the treatment is continued until the passage of blood and mucus decreases and the evacuations become fæcal in character. Relief will generally be given after from six to eight doses, the patient feeling much more comfortable and experiencing much less pain and straining. In the first 24 hours the number of evacuations will not be lessened and at this time one can only judge of the success of the treatment by the feelings of the patient and by the character of the evacuations. In more chronic cases of dysentery rectal injections of boric acid and solutions of silver of nitrate are of service.

Post mortem more or less severe ulceration of the rectum and sigmoid flexure is usually found with thickening of the walls of the gut and enlargement of the mesenteric glands. Isolated patches of ulceration and inflammation of the rest of the colon often occur and the cæcum often suffers very severely. The small intestines are generally healthy, except that the lower part of the ileum has been inflamed in some cases. The amœba of dysentery has been searched for by Dr. Washbourn, but so far none has been discovered.

By far the largest number of our patients are suffering from typhoid fever of a very severe type. The chief strain seems to fall upon the circulatory apparatus and weak-running pulses of from 130 to 144 are not uncommon. The reason for this seems to be that the patients before contracting the disease have had excessively hard work to do, riding and marching for many hours every day, and this has no doubt weakened the resisting power of the heart in a disease which is known to severely attack the muscular structures throughout the body. Liberal quantities of champagne and brandy, with digitalis and strychnine, have to be given to tide the patient over his difficulties.

In all cases of doubtful diagnosis the Widal reaction is applied under the personal supervision of Dr. Washbourn. After dysentery sometimes chronic arthritis occurs with very little pain in the joint except on movement and with no swelling of the joint, but with a persistent temperature which has a suspicious resemblance to a typhoid fever chart. In one patient a doubt existed between the diagnosis of malaria and typhoid fever, so specimens of blood were examined by Dr. Washbourn for the plasmodium malariæ and a Widal's reaction was also tried. The plasmodium was found as masses of pigment in several of the red blood corpuscles and an immediate clumping of a typhoid culture pointed to the presence of typhoid fever. This double diagnosis has since been borne out by the subsequent progress of the patient. The Widal reaction is sometimes at fault. In one case of dysentery a strong and immediate reaction took place but typhoid fever was proved afterwards at the necropsy to be absent.

At present it is perhaps too early to condemn inoculation against typhoid fever. It certainly does not prevent a patient from contracting the disease, and it seems doubtful whether the inoculated person will show any greater immunity than the non-inoculated person. Slight attacks have occurred in both clases of patients and two patients in this hospital who were inoculated have succumbed to the disease. On *a priori* grounds one would hardly expect that a preventive serum treatment would be successful in a disease which after it has existed for something like three weeks cannot protect the patient from a relapse. Moreover, second attacks are by no means unknown and one of Dr. Richmond's patients had a most severe second attack of typhoid fever from which he died, so that a previous attack does not seem to protect either from the disease itself or to lessen its severity.

One cannot praise too highly the care and devotion to duty which has been shown by the nursing sisters, one and all, in their work in the hospital. It is, of course, in the treatment of typhoid fever that their assistance is of the utmost value, and many a convalescent soldier will owe his life to the skilful nursing of a trained sister. The arrangements for the treatment of cases of typhoid fever are most complete. Special huts are set apart for their reception and special sisters and special orderlies are appointed who never attend other patients. In addition to these arrangements a latrine for typhoid fever patients has been built in the midst of the huts occupied by those patients suffering from typhoid fever, where the evacuations are sterilised by disinfectants before they are destroyed, and where all soiled linen is soaked in

lysol for 24 hours before it is taken to the laundry to be washed.

Two interesting cases of relapse in typhoid fever have occurred. In the first case the patient's temperature rose about 10 or 11 days after his first attack and he had all the usual symptoms of a slight relapse, such as headache, malaise, pains in the limbs, slight abdominal distension, and enlargement of the spleen. The evening temperature remained up for seven days, with a normal temperature each morning after the first three days, during which time it rose to 102° F. On the eighth day the patient seemed quite well again; his temperature was normal and it remained so for five days. On the fourteenth day he was seized with pain in the abdomen and his temperature suddenly ran up to 105° without any preceding condition of collapse being noticed. His abdomen was rigid and did not move well with respiration. There was dulness of the lower part of the abdomen, especially on the right side, sickness began, and the pulse became more rapid and weaker. Dr. Washbourn, in connexion with Dr. Richmond, diagnosed a perforation of a typhoid ulcer, and laparotomy was performed by Mr. Raymond Johnson. A small perforation was soon discovered in the centre of a typhoid ulcer in the ileum of about the size of a shilling. The walls of the gut were too soft to allow of the ulcer being stitched up and so it was sewn into the wound and the peritoneum was washed out with boric acid lotion and the pelvis drained. The patient unfortunately sank a few hours after the operation. At the post-mortem examination it was found that this was the only ulcer present, although there were evidences of recent typhoid ulcers. It is thus clear that a single typhoid ulcer can give rise to a relapse, and that although such relapse may have a very short period of pyrexia it is of the utmost importance to treat such attacks with as much care as in the primary attack. In this instance the patient was kept on a strict diet of plain milk from the second day on which his temperature rose until his decease. In the second case a relapse occurred with all the usual symptoms and with enlargement of the spleen and with spots five weeks after the patient's temperature had been normal.

Deelfontein, May 14th.

ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

ANNUAL DINNER.

THE annual dinner of the Association of British Postal Medical Officers was held under the chairmanship of the President, Dr. W. DOUGAN, on June 21st, at the Whitehall Rooms, Hôtel Métropole. The usual loyal toasts having been honoured, Sir JAMES CRICHTON BROWNE proposed "The Imperial Forces" in an eloquent speech and the toast was replied to by Sir JOSEPH FAYRER who said that he had endeavoured to record in the book which he had just written and published the history of his life's work and he had honestly done his best for those Services for which he was responding. For the rest of his life, which in the nature of things could not be very prolonged, he felt that he had the approbation of his *confreres* in the profession and of his brother officers in the Service, which he thought was the best reward a man could have. "The Houses of Parliament" was next proposed by Mr. EDMUND OWEN in a brilliant and witty speech, and was replied to by Mr. J. WALTON, M.P., who said that he had always entertained the idea that the House of Lords was a body of men independent of, and uninfluenced by, the voice of clamour, but that idea of his a short time ago received a shock when the peers surrendered on the vaccination question. Mr. EUGENE WASON, M.P., proposed, and Sir ROBERT HUNTER replied to, the toast of "The Postmaster-General, the Secretary, and other Executive Officers of the Post Office." "The Board of Education and other State Departments" was proposed by Dr. F. DE HAVILLAND HALL, and was responded to by Sir GEORGE KEKEWICH, Secretary to the Board of Education. Dr. J. F. W. TATHAM, Superintendent of Statistics to the Registrar-General's Office, also acknowledged the toast, and said that he wished to extend the usefulness of the statistics issued by his office. He had to thank the members of his own profession for the hearty support extended to him in the performance of his duties. The toast of "Preventive Medicine" was proposed by Dr. WOOD (Dulwich) and was replied to by Professor W. H. CORFIELD, who said that such was the excellence of the carrying out of the vaccination regulations in Germany that since 1874 no epidemic of small-pox had occurred throughout that empire, and as a result when a case of small-pox occurred in the extreme outlying parts adjacent to countries where the vaccination laws were carelessly enforced the first German medical officer seeing the case generally mistook it for chicken-pox. He himself could remember three hospitals in London where scarlet fever cases in times past were mixed up with the general patients. For his efforts to stop that he had received the severest possible censure from the chief physician of one of the hospitals concerned who was also medical officer of health; that alone showed how preventive medicine had advanced.—Dr. A. WHITELEGGE (Chief Factory Inspector), in giving the toast of "The General Medical Council," said that it was realised that the Council was endeavouring to make the profession more select by elimination of undesirable members and by increasing the stringency of the qualifying examinations.—Dr. J. G. GLOVER, in responding to the toast, said that it would be well for the medical profession if all gentlemen spoke of the General Medical Council with the generosity which characterised the remarks of Dr. Whitelegge. He (Dr. Glover) did not wish to save the Council from criticism for it was the better for it, but any fair student of its proceedings would conclude that with the limited powers it had it did the best it could. Nothing would do the Council more good than the encouragement of the profession. As a slight proof of the right of the Council to feel that it had done something for the profession he would refer to the question of infectious diseases. He himself had taken an active part in trying to increase the education of students in the matter. He was a member of the deputation sent to ask Mr. Ritchie to open the Metropolitan Asylums Board hospitals to students. It was possible for a man to be a most distinguished student and yet never see a case of small-pox and possibly measles. When the deputation went to Mr. Ritchie Sir Samuel Wilks related how Guy's Hospital had been asked to send a medical man to one of the important public schools, and the best man the hospital had was sent. There arose in the school a mysterious complaint which this gentleman had never seen before. He was so puzzled that he went to the oldest medical practitioner in the district and detailed the symptoms and was duly informed that he had to deal with an outbreak of measles. This defect in medical education the Council was trying to remedy. The unity of the profession would be best served and promoted by giving all encouragement to the General Medical Council, for it was the most representative body in the profession: it represented the medical schools in the United Kingdom, the Universities, the medical corporations, and the great body of the medical profession, though, of course, it must be admitted that direct representation was not as adequate as it might be. If they used the amount of direct representation which they had in the right way it would be increased, but they might so abuse it as to secure not extension but extinction. He (Dr. Glover) could say as one of the Direct Representatives that the other members of that Council representing the Crown and other interests paid great respect to the views of the Direct Representatives.—Dr. R. PARAMORE proposed "The Medical Press," which toast was suitably responded to.—The Rev. HENRY BELCHER proposed "The Association of the British Postal Medical Officers," and this having been replied to by the PRESIDENT, Dr. H. FITZGIBBON proposed "The Guests," which received due acknowledgment from Sir THOMAS ROE and Mr. P. J. FREYER.—A very cordial vote of thanks to the honorary general secretary, Dr. R. Ritchie Giddings, concluded the proceedings. The enjoyment of the evening was much enhanced by the excellent singing of Miss Lilian Corner and Mr. George Schneider and by a well-selected programme of music executed by the Imperial Orchestra.

THE NEW INFIRMARY AT NEWCASTLE.

THE foundation-stone of the Royal Victoria Infirmary was laid by the Prince of Wales on Wednesday, June 20th. The new building, which is to commemorate the Diamond Jubilee of Her Majesty the Queen, will occupy a site upon Castle Leazes and will take the place of the old infirmary which, by

its lack of adequate accommodation, has not for many years been able to minister to the wants of a greatly increased population. Briefly the story of the new building is as follows. In 1896 Mr. R. Lord was for the first time elected mayor of Newcastle and he initiated the movement to build a new infirmary to celebrate the Queen's Diamond Jubilee. He asked for £60,000, £1000 for each year the Queen would have reigned. This sum was raised more easily than it was expected it would be and Mr. Lord then asked for £40,000 more to rebuild the infirmary on its present site. While this money was being collected Mr. John Hall, a wealthy Newcastle merchant, offered to give £100,000 to build a new infirmary provided the site were changed and after great trouble and much delay ten acres of land were given by the corporation who own the soil and by the freemen who own the herbage on one of the sites selected by Mr. J. Hall on the Castle Leazes, at one time a part of the great Newcastle Town Moor. For the part which Mr. R. Lord has played in this gigantic undertaking he deserves the gratitude of the inhabitants of the counties of Northumberland and Durham. For 30 years at least the building of another infirmary in Newcastle has been talked of and from time to time efforts have been made to raise the requisite funds, but till Mr. Lord did it everyone thought the task impossible. Now at last a complete building will be erected. It will accommodate 400 patients and will probably cost, including the value of the site, £300,000. It will be one of the very finest hospitals in the kingdom.

The date chosen for the foundation-stone ceremony was particularly appropriate, inasmuch as June 20th is the anniversary of the Queen's accession to the throne. Never before have the streets of Newcastle been decorated as they were; bunting and other coloured decorations disguised the handsome stone buildings so that in many cases they could hardly be recognised, and the thoroughfares were thronged with such a crowd of visitors as has rarely if ever collected together in the stately old town. Fortunately the day, with the exception of a few slight showers, was fine and warm, so that everything contributed to make the laying of the foundation-stone a complete success. The Royal party arrived at the Central Station from York at 12.10 P.M. and were met by the Home Secretary, the Lord Lieutenant of Northumberland (Earl Grey), Lord Durham, the Mayor (Mr. R. Lord) and Mayoress, the Sheriffs, and the members of the corporation, together with many of the prominent citizens. An address, enclosed in a casket of ivory and gold, was presented to the Prince of Wales in the Assembly Room. His Royal Highness, who represented the Queen, having replied, a procession was formed and, escorted by a detachment of the Household troops, proceeded to a large covered stand capable of accommodating some thousands of spectators, where, in the presence of a huge crowd, the foundation stone was laid.

In reply to an address read by Professor G. H. PHILIPSON, M.D. Cantab., on behalf of the governors of the infirmary, the PRINCE OF WALES said: It gives me much pleasure to be here to-day, by the desire and on behalf of the Queen, my dear mother, to lay the foundation-stone of the beneficent institution which Her Majesty has directed shall bear her name in permanent commemoration of the wisdom of your corporation and freemen and of the generous charity of the inhabitants of this great city and the adjoining counties on the occasion of her Diamond Jubilee. The vast and varied industries which have grown up on the banks of the Tyne and maintain your population of resolute and prosperous workers are, unfortunately, in some instances carried on with a considerable, though happily diminishing, risk to life and health. It is therefore extremely gratifying to the Princess of Wales and myself to take part in the inauguration of a hospital so extensive and well equipped, where the best resources of medical science and of skilled and efficient nursing will be at all times available for the benefit of the suffering. We learn with satisfaction that a very generous contribution has been made by working men towards the endowment of the infirmary from which they will derive such benefits. I shall be happy to convey to the Queen your loyal and dutiful expressions of attachment and your good wishes, and I have to thank you for the cordial reception which you have given to the Princess of Wales and myself and to our daughter the Princess Victoria.

The Bishop of NEWCASTLE offered a special prayer and the MAYOR, on behalf of the architects, Mr. W. L. Newcombe, F.R.I.B.A., Newcastle, and Mr. Percy Adam, London, and of the contractor, Mr. A. Pringle, presented to His Royal Highness a golden trowel and a mallet. The Prince then declared the stone to be "well and truly laid."

The MAYORESS, on behalf of the governors of the Royal Victoria Infirmary, presented to the Princess of Wales a fan embellished with a view of the new building.

At a lunch which was afterwards served in the St. George's Drill Hall to some 900 guests the PRINCE OF WALES, in reply to the loyal toasts, said: In the name of the Princess and of our daughter and in my own name I must express our heartfelt thanks for the manner in which the Mayor has so kindly proposed this toast and for the cordial way in which you have received it to-day. ..... The Mayor having intimated a great wish that the Queen should lay the foundation stone of the great infirmary which is called after her name, she, being unable for various reasons to do so, deputed me to take her place. ..... I need hardly say how gladly I was able to take the opportunity of once more being among you, where we have always been so kindly received. Most sincerely do I hope that the building will meet all its requirements. The spot chosen seems to be a most excellent one, and I am glad to hear not only of the great munificence of a donor who, alas, has been taken from us, but that the working classes have shown the great interest that they take in their own welfare by subscribing considerable sums towards the institution. Everybody knows how celebrated Newcastle is for its great works and for its shipping. It is known all over the world. His Royal Highness then proposed the health of the Mayor and Corporation of Newcastle, to which he added the health of the Mayoress.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

ON July 5th the Fellows of the Royal College of Surgeons of England will be called upon to elect four members of the Council, and the occasion is remarkable, not for the number of vacancies, for in some years five vacancies have occurred, but for the large number of Fellows who have come forward as candidates. 12 Fellows will compete for the four seats, and so far as we are aware this number is absolutely unprecedented. There were, indeed, 13 candidates, but Mr. J. H. Morgan has retired, as Mr. J. A. Bloxam, his senior colleague at Charing-cross Hospital, is a candidate.

The electors will certainly experience some difficulty in deciding for whom they should vote. The motives which influence the voting are necessarily complex, but far above all others the influence of the medical school is felt, for as a rule Fellows support those candidates who come from their own medical school, and provincial voters support provincial candidates. There is much that is good in this feeling of loyalty, but we do not hesitate to point out that the power of electing to so important a body as the Council of the Royal College of Surgeons of England is a serious trust and it should be exercised not for the benefit of any individual, but for the good of medical education and of the medical profession at large. Those Fellows should be chosen who have shown themselves to have at heart the real advancement of surgery.

In considering the long list of candidates we find that three of them have already been members of the Council. Two of the retiring members, Mr. John Tweedy and Mr. Alfred Cooper, are offering themselves for re-election, and we imagine that all will agree that a retiring member of the Council who has served one term of office well is always justified in looking forward to being appointed for a second period. Mr. Tweedy was originally elected as representing the reform party in the College, and his conduct during the time he has already served has fully justified his appointment, for though he has shown himself at all times a zealous supporter of reform, he does not under-estimate the difficulties of the task. He has done good work on the Council and he would be certainly much missed by his colleagues should he not attain re-election. Mr. Alfred Cooper has also served one term and has proved himself a useful member of the Council; he will no doubt receive much support. Dr. Ward Cousins has not at present a seat on the Council though he has been twice elected a member. On each occasion he has replaced a member who through death has not finished his full term of

office; the result has been that though Dr. Cousins has had two terms of office he has only served four years.

Of the nine remaining candidates one, Mr. Jordan Lloyd, is a provincial Fellow, a well-known surgeon of Birmingham. At present there are only four provincial members of the Council, though there have been five, and if the electors consider that five members should be from the provinces they will elect either Dr. Ward Cousins or Mr. Jordan Lloyd. We are sure that either of them would be a useful addition to the Council.

The eight London candidates who have not yet been on the Council represent six medical schools, for Guy's and Middlesex each have two candidates, Mr. Clement Lucas and Mr. Golding-Bird being connected with the former and Mr. Pearce Gould and Mr. Bland-Sutton with the latter. Charing-cross is represented by Mr. J. A. Bloxam, St. Bartholomew's by Mr. W. J. Walsham, St. Thomas's by Mr. H. H. Clutton, and St. George's by Mr. W. H. Bennett.

As Sir Thomas Smith, who is retiring from the Council and does not intend to offer himself for re-election, is from St. Bartholomew's it is not unlikely that that medical school will be successful in replacing him by Mr. Walsham, although four members of the Council at present represent that hospital.

With regard to the other candidates we do not feel called upon to discriminate between so many able surgeons and we must leave to the electors themselves the onerous task of decision.

This year, as for several years past, the Fellows have been supplied with ballot papers so that they can vote by post, and there will be a still further falling off in the numbers of those who vote in person; but we would remind the electors that six Fellows must be present before the election can commence and would ask any London Fellows who can spare the time to attend at the College on Thursday next at 1.30 P.M.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6569 births and 3325 deaths were registered during the week ending June 23rd. The annual rate of mortality in these towns, which had been 16·8 and 18·0 per 1000 in the two preceding weeks, declined again to 14·9 last week. In London the death-rate was 13·3 per 1000, while it averaged 16·0 in the 32 provincial towns. The lowest death-rates in these towns were 8·0 in Birkenhead, 9·9 in Cardiff and in Nottingham, 10·0 in Norwich, and 10·2 in Portsmouth; the highest rates were 29·7 in Manchester, 21·2 in Liverpool and in Sunderland, 21·8 in Oldham, and 22·4 in Salford. The 3325 deaths in these towns included 366 which were referred to the principal zymotic diseases, against 386 and 427 in the two preceding weeks; of these 117 were referred to measles, 82 to whooping-cough, 64 to diarrhœa, 56 to diphtheria, 28 to scarlet fever, 18 to "fever" (principally enteric), and one to small-pox. No fatal case of any of these diseases occurred last week in Birkenhead; in the other towns they caused the lowest death-rates in Swansea, Nottingham, Halifax, Gateshead, and Newcastle; and the highest rates in Wolverhampton, Derby, Manchester, Oldham, Preston, and Sunderland. The greatest mortality from measles occurred in Plymouth, Derby, Manchester, Oldham, Huddersfield, and Sunderland; from whooping-cough in Oldham; and from diarrhœa in Wolverhampton, Preston, and Sunderland. The mortality from scarlet fever and from "fever" showed no marked excess in any of the 33 large towns. The 56 deaths from diphtheria included 21 in London, six in Leicester, six in Sheffield, and four in Leeds. One fatal case of small-pox was registered last week in Wolverhampton, but not one in any other of the 33 towns. The number of small-pox patients under treatment in the Metropolitan Asylums Hospitals, which had increased from three to 15 at the end of the five preceding weeks, had declined again to 13 on Saturday last, June 23rd; one new case was admitted during the week, against four, four, and eight in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1810, against 1754 and 1766 on the two preceding Saturdays. 219 new cases were admitted during the week, against 194, 203, and 210 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 268 and 257 in the two preceding weeks, further declined last week to 181, and were 28 below the corrected average. The causes of 44, or 1·3 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leicester, Nottingham, Salford, Bolton, and in 10 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Preston, Huddersfield, Halifax, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 18·3 and 19·9 per 1000 in the two preceding weeks, declined again to 16·5 during the week ending June 23rd, but exceeded by 1·6 per 1000 the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 8·6 in Leith and 10·6 in Paisley to 17·0 in Edinburgh and 18·8 in Glasgow. The 510 deaths in these towns included 19 which were referred to diarrhœa, 18 to whooping-cough, 14 to measles, four to diphtheria, two to scarlet fever, two to "fever," and one to small-pox. In all 60 deaths resulted from these principal zymotic diseases, against 57 and 78 in the two preceding weeks. These 60 deaths were equal to an annual rate of 1·9 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been seven and 22 in the two preceding weeks, declined again last week to 19, of which seven occurred in Edinburgh, five in Glasgow, two in Dundee, and two in Paisley. The deaths from whooping-cough, which had been 17 and 25 in the two preceding weeks, declined again to 18 last week, and included 16 in Glasgow. The fatal cases of measles, which had risen from 10 to 23 in the four preceding weeks, declined again last week to 14, of which 11 were registered in Glasgow and two in Edinburgh. The four deaths from diphtheria corresponded with the number in the preceding week, and included three in Glasgow, where the two fatal cases of scarlet fever and the death from small-pox were also recorded. The deaths referred to diseases of the respiratory organs in these towns, which had been 106 and 101 in the two preceding weeks, further declined last week to 87, but showed an excess of 13 over the number in the corresponding period of last year. The causes of 25, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 21·9, 23·1, and 23·8 per 1000 in the three preceding weeks, declined again to 17·9 during the week ending June 23rd. During the past four weeks the death-rate in the city has averaged 21·7 per 1000, the rate during the same period being 15·9 in London and 16·7 in Edinburgh. The 120 deaths belonging to Dublin registered during the week under notice were 40 below the number in the preceding week, and included four which were referred to the principal zymotic diseases, against three, 10, and six in the three preceding weeks; of these, two resulted from "fever," one from diphtheria, one from whooping-cough, and not one either from small-pox, measles, scarlet fever, or diarrhœa. These four deaths were equal to an annual rate of 0·6 per 1000, the zymotic death-rate during the same period being 1·5 in London and 2·1 in Edinburgh. The two deaths from "fever" corresponded with the number in the preceding week, while the mortality from diphtheria showed a slight decrease. The 120 deaths in Dublin last week included 23 of infants under one year of age and 28 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a decline from the numbers recorded in the preceding week. One inquest case and one death from violence were registered; and 47, or more than a third, of the deaths occurred in public institutions. The causes of eight, or nearly 7 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff-Surgeons: James M'C. Martin, D.S.O., and W. E. Home to the *Centurion*; and H. P. Shuttleworth to the *Boscawen* for the *Minotaur*. Surgeons: Richard C.

Munday to the *Nelson*; S. Roach to the *Centurion*; William Walker, John O'Hea, Leonard S. Whitwan, Herbert, Denny, Alfred J. Hewett, and Gerald M. Eastment, to the *Duke of Wellington*, additional for disposal; Robert W. G. Stewart, John St. John, Murphy Henry J. Rogers, Alex. C. Remirck, Walter P. Dyer, and Thomas H. Vickers, all to the *Vivid*, additional for disposal; Robert R. Fasson, Arthur F. Fraser, and Ralph B. Ainsworth, to the *Pembroke*, additional for disposal; John R. Muir, Arthur F. Frank, and Richard R. Horley, to the *Wildfire*, additional for disposal; A. W. Campbell to the *Lizard*; A. Gaskell and J. D. S. Milln to the *Centurion*: and J. P. H. Greenhalgh to the *Prince George*.

INDIA AND THE INDIAN MEDICAL SERVICES.

The following promotions are approved:—To be Colonel:—Lieutenant-Colonel Charles Henry Joubert, Bengal Establishment. Majors to be Lieutenant-Colonels: *Bengal Establishment:* Charles Pardey Lukis, Robert Richard Harvey Whitwell, Lawrence Augustine Waddell, Dhanjibhai Barjorji Spencer, James Clarke, Cooverjee Cawasjee Vaid, Philip Durrell Pank, Thomas Richard Mulroney, and Thomas Rankin Macdonald. *Madras Establishment:* Rustam Hormasji Cama, Winthrop Benjamin Browning, C.I.E., Crosdaaile Miller Thompson, Cubitt Sindall Rundle and James William Evans. *Bombay Establishment:* Henry Peers Dimmock and Charles Bradley Maitland. Captains to be Majors: *Bengal Establishment:* Daniel Grove Marshall, David Macbeth Moir, Harry Frederick Whitchurch, V.C., James Reid Roberts, Frederick William Gee, Kanta Prasad, Patrick Wilkins O'Gorman, William Henry Gray, and George Thomas Mould. *Madras Establishment:* Allan Ewen Grant and Frank Charles Pereira. *Bombay Establishment:* James Graham Hojel, Henry Charles Leffler Arnim, and George Sloane Thomson. The transfer of the undermentioned officer to the half-pay list is also approved: Captain John William Wolfe, Bengal Establishment. The retirement from the service of the undermentioned officers is also notified:—*Bengal Establishment:* Lieutenant-Colonel Charles James Hislop Warden, Lieutenant-Colonel Richard Nugent Stoker, and Lieutenant-Colonel Thomas Rankin Macdonald. *Bombay Establishment:* Lieutenant-Colonel Atmaram Sadashiva Graudin Jayakar.

MILITIA INFANTRY.

Ernest Madge, late Surgeon-Lieutenant, Militia Medical Staff Corps, to be Captain.

VOLUNTEER CORPS.

Artillery: (1st Cornwall) Duke of Cornwall's (Western Division, Royal Garrison Artillery): Surgeon-Major W. Mason to be Surgeon-Lieutenant-Colonel; Surgeon-Captain W. K. Bullmore to be Surgeon-Major. Submarine Miners: The Clyde Division: Surgeon-Lieutenant J. Rowan to be Surgeon-Captain. *Rifle:* 8th Volunteer Battalion the Royal Scots (Lothian Regiment): George Alexander Dickson to be Surgeon-Lieutenant. 1st Volunteer Battalion the Royal Warwickshire Regiment: Surgeon-Major E. L. Freer to be Surgeon-Lieutenant-Colonel and to remain Supernumerary. 3rd (Dumfries) Volunteer Battalion the King's Own Scottish Borderers: Surgeon-Lieutenant G. D. Logan resigns his commission. 4th Volunteer Battalion the East Surrey Regiment: Surgeon-Major E. J. Lawless to be Surgeon-Lieutenant-Colonel and to remain Supernumerary. 1st Nottinghamshire (Robin Hood): James Black Roberts to be Surgeon-Lieutenant.

Memorandum.—Consequent upon the division of the 1st Volunteer Battalion the Lincolnshire Regiment into two Volunteer Battalions, designated respectively the 1st and 3rd Volunteer Battalions the Lincolnshire Regiment, Her Majesty has been graciously pleased to approve of the following with effect from June 20th, 1900, and of the officers so transferred being considered to have received in the new battalion commissions of the same rank and date as in the consolidated one, viz.:—1st Volunteer Battalion the Lincolnshire Regiment: Surgeon-Major F. J. Walker and Surgeon-Lieutenant J. Bruce.

TRANSVAAL WAR NOTES.

Lieutenant Carlyon, R.A.M.C., Civil Surgeon Bruce, and Civil Surgeon M. P. Cooke have left England for South Africa. Major Bond, R.A.M.C., is on his way to England wounded in the *Armenian*. Civil Surgeon Stamford is returning to England in the *Bavarian*. Lieutenant Buist, R.A.M.C., Major A. B. Cottell, Lieutenant H. G. Martin, Lieutenant Scott, Civil Surgeon Callum, and Civil Surgeon Smith have arrived in England. The following officers were discharged from hospital to duty for the week which ended June 10th: Civil Surgeons Smallman and Civil Surgeon Hunter. Major A. Wright, R.A.M.C., and Surgeon-Lieutenant-Colonel Lawless, 4th Battalion East Surrey Regiment, were discharged from hospital to duty for the week ending June 17th.

On June 19th Princess Henry of Battenberg visited the Syracusa Convalescent Home for Wounded Soldiers at Torquay. This institution, which at present contains 28 soldiers, several of whom are Canadians, was founded by Mr. and Mrs. Mallock. Mr. J. Quick described each case and Her Royal Highness had a cheering word to say to each of the men.

Mrs. Skey Muir, the honorary secretary of the Royal Army Medical Corps South African Fund, notifies all those who have been interested in the work of this Fund that the offices, 77, George-street, Portman-square, W., will be given up early in July and that no parcels can be received after the 7th prox. Gifts in money may, however, still be sent to the bankers, Messrs. Holt and Co., 3, Whitehall-place. Should it be found desirable to resume the work in the autumn due notice will be inserted in the daily press.

Invalids from South Africa, consisting of 23 officers and 200 men, have arrived in Plymouth this week and have been admitted into the Station Hospital, Devonport. In addition to the camp hospital for 50 beds which has been established at Fort Staddon the hospital at Tregantle Fort has been increased to 50 beds. Both these hospitals will be further increased should the occasion arise.

The s.s. *Cheshire* and *Pembroke Castle* arrived at Southamyton on June 19th and June 22nd respectively. The former brought 392 and the latter 334 sick and wounded from South Africa who were admitted to the Royal Victoria Hospital. We hear that in future convalescent patients will be sent on from the troopships to Portsmouth and that only men really requiring medical treatment will in future be admitted to the wards of the hospital.

TRANSVAAL WAR CASUALTIES.

Surgeon-Lieutenant-Colonel James Stevenson died at Cape Town on June 19th.

Mr. Benton Norman Maclean, medical officer attached to the Imperial Light Horse, is reported to have died from ptomaine poisoning at Ladysmith.

Captain J. H. Campbell, R.A.M.C., was severely wounded during the operations in Natal on Feb. 24th.

The following are reported dangerously ill:—At Bloemfontein: Surgeon-Lieutenant-Colonel W. W. Lake, Militia Medical Staff Corps. At Kimberley: Civil Surgeon W. H. Steele. Civil Surgeon W. B. Bennett, attached No. 1 Stationary Hospital, Natal. At Kroonstad, June 16th: Civil Surgeons R. W. Jameson and A. Robertson.

Lord Roberts telegraphs that the following sick officers are reported to be at Heilbron: Major Greig, R.A.M.C., and Civil Surgeon Ash, enteric fever; doing well.

THE CRISIS IN CHINA.

A *Times* telegram through Reuter's agency, dated Calcutta, June 26th, states that a wing of the 7th Bengal Regiment, together with the 43rd Field Hospital, embarked on June 25th on board the *Nerbudda*.

In a subsequent telegram, dated Simla, June 26th, the *Times* says: Major Cree, R.A.M.C., will proceed on hospital duty with the force. Lieutenant Douglas and Captain Walton of the Indian Medical Service have been placed in charge of the x rays apparatus, of which there is only one complete set available here.

The following Indian medical officers will accompany the regiments proceeding to China: Lieutenant-Colonel Bookey (principal officer), Lieutenant-Colonel Esmonde-White, Majors Mould and Whitchurch, V.C., and Captains Kenrick, Walton, and Price. Those proceeding with the hospitals are: Lieutenant-Colonel Waddell, Majors Burton, Fooks, Thomson, Marshall, and White, Captains Jenny, Carr, Moorhead, Harriss, and Hamilton, Lieutenants Fenton, McCay, Megaw, G. Stewart, Willmore, Meakin, Gidney, and C. Stewart.

ROYAL VISIT TO NETLEY HOSPITAL.

On June 21st H.R.H. the Princess Louise, Duchess of Argyll, visited the Royal Victoria Hospital with Mrs. Eliot Yorke with whom she was staying at Hamble Cliff. Arriving at the hospital at 2.45 P.M. Her Royal Highness was met by Colonel Charlton, R.A.M.C., accompanied by his secretary (Major Treherne, R.A.M.C.), and by Professor A. E. Wright, and was conducted through the wards of both the medical and surgical divisions of the hospital. In the

former the cases were explained to the Princess by Lieutenant-Colonel W. E. Webb, R.A.M.C., and in the surgical division by Major W. Dick, R.A.M.C., acting Professor of Surgery, and by Major Birt, R.A.M.C., the latter being the officer in charge of the surgical division. The Princess remained in the hospital for rather more than two hours.

ARMY MEDICAL SCHOOL, NETLEY.

Under orders from the Director-General of the Army Medical Service a special examination was held at the Army Medical School on June 20th and 21st to examine the surgeons-on-probation who had been nominated for the Royal Army Medical Corps. The following gentlemen were recommended for commissions as Lieutenants:—

1. P. Henderson.
2. J. P. Murphy.
3. A. R. Greenwood.
4. F. H. Hardy.
5. W. M. H. Spiller.
6. D. W. K. Moody.
7. A. D. Jameson.
8. W. Bennett.
9. B. B. Burke.
10. W. B. Fry.
11. C. R. L. Ronayne.
12. G. Baillie.
13. L. L. G. Thorpe.
14. J. B. Hall.
15. W. S. Crosthwait.
16. P. G. Douglass
17. R. F. Ellery.

DEATHS IN THE SERVICES.

Lieutenant-Colonel George Frederick Bevan, I.M.S., recently, who qualified as L.R.C.S. and L.R.C.P. Irel. in 1870 and 1871 respectively, met with a serious carriage accident at Bangalore in April last. He was recovering from its effects when pneumonia set in which rapidly proved fatal.

Lieutenant Charles William McG. Orpen, I.M.S., at Quetta, recently, from pneumonia. Lieutenant Orpen, who had only recently entered the service, graduated as M.B., B.Ch., and A.B.O. Dub. in 1897.

Correspondence.

"Audi alteram partem."

THE POSITION OF THE GENERAL MEDICAL COUNCIL WITH RESPECT TO THE MIDWIVES BILL.

To the Editors of THE LANCET.

SIRS,—As President of the General Medical Council I have been authorised and requested to state, should certain amendments to the Midwives Bill now under consideration in the House of Commons be placed on the notice-paper, that the Council at its last meeting carefully considered the bearing of the most important of these amendments and passed the following resolution:—

That the Council request the President to represent to the Lord President of the Privy Council that the amendment of Clause 2 (2) of the Midwives Bill by the omission of the words "or shall habitually and for gain attend women in childbirth" would so completely destroy its efficacy as a measure of protection for lying-in women of the poorer classes, that the Council could no longer approve of the Bill passing into law; and that accordingly they deem it unnecessary at the present time to express an opinion on the other amendments suggested.

As I understand that an amendment for the omission of the words referred to has been placed on the notice-paper I have to request that you will favour me by publishing this letter so that the Medical Council's position on this matter may be known.

I am, Sirs, yours faithfully,

June 28th, 1900. WM. TURNER.

THE RIGHT OF THE LICENTIATE OF THE SOCIETY OF APOTHECARIES OF LONDON TO STYLE HIMSELF "PHYSICIAN AND SURGEON."

To the Editors of THE LANCET.

SIRS,—Subjoined is a copy of a resolution passed by the Court of Assistants of this Society on June 19th. Having regard to the great importance of the resolution to the Licentiates of the Society I shall be much obliged if you will allow it to be published in your next issue.

I am, Sirs, your faithfully,

June 26th, 1900. JAMES R. UPTON.

The resolution passed by the General Medical Council at its recent session deciding not to employ the funds of the Council in defraying the expenses of a test case to determine whether the L.S.A. (1886) is or is not entitled to call himself Physician and Surgeon having been read,

Resolved, that in view of the opinions expressed by eminent counsel in favour of the Society's contention, and this court considering that the decision of the General Medical Council ought not to operate to the prejudice of the Licentiates of the Society, hereby authorises all Licentiates of the Society qualified under the Medical Act, 1886, to call themselves Physician and Surgeon and undertakes to defend them at the sole cost of the Society from the legal consequences of their adopting those titles.

THE DAVIES-COLLEY MEMORIAL FUND.

To the Editors of THE LANCET.

SIRS,—The irreparable loss which our hospital and medical school have sustained through the death of Mr. Davies-Colley while still with us in active work has awakened a general desire to perpetuate his memory. It is felt that there are many who will be eager to testify in some lasting form to Mr. Davies-Colley's great ability, unvarying uprightness, and daily devotion to duty. To this end at a meeting of the medical staff it was decided to invite subscriptions. The form which the memorial shall take will be determined at a meeting of the subscribers to be held at a later date. Subscriptions may be sent to Dr. T. G. Stevens at the address as below.

We are, Sirs, yours very truly,

CHARTERS J. SYMONDS, Treasurer.
THOS. G. STEVENS, Hon. Secretary.

8, St. Thomas's-street, London Bridge, S.E., June 28th, 1900.

LYMPHATIC LEUKÆMIA.

To the Editors of THE LANCET.

SIRS,—I have read with some interest the account of the case of lymphatic leukæmia published in THE LANCET of June 16th by Dr. Murrell. While agreeing with the author as to the importance of recording new and successful treatment in this disease, I should submit that the diagnosis is not so clear as was assumed. The diagnosis of lymphatic leukæmia is based upon three cardinal symptoms: (1) progressive hyperplasia of the lymphatic glands; (2) marked increase in the numbers of white blood corpuscles in the circulation; and (3) abnormally high percentage of lymphocytes. It is true that Muir and others have published cases in which the hyperplasia of the lymphatic glands was absent, but I am aware of no record of a case in which the latter two symptoms were also absent. In Dr. Murrell's case there is no mention made of the condition of the lymphatic glands, the number of white corpuscles was never above the normal; in fact, in the first and third counts there was a considerable leucopenia, and as regards the percentage a clear differentiation was not made between lymphocytes and hyaline corpuscles. I would further suggest that the condition described as "small cells having a single pale nucleus ..... surrounded by a narrow zone of fine granules staining very deeply with methylene blue" is such as is not infrequently seen when blood is deeply stained with methylene blue. Ehrlich[1] in describing the lymphocyte says: "The protoplasm shows with methylene blue and similar stains inequalities in the intensity of staining which must be regarded, not [as Ehrlich first thought] as the expression of a granulation, but as a net-like structure." It would be advisable that the indicated points should be cleared up before such a valuable case is put on record.

I am, Sirs, yours faithfully,

J. CHARLTON BRISCOE.

King's College Hospital, June 20th, 1900.

[1] Die Anæmie, p. 46.

"ACCIDENTAL VACCINATION OF A WOMAN BY HER CHILD."

To the Editors of THE LANCET.

SIRS,—A case similar to that reported by Mr. Henchley in THE LANCET of June 23rd (p. 1846) occurred to me last year. A lady came to stay in this neighbourhood bringing her infant with her and in a few days she sent for me. She was suffering from pyrexia and from diffused redness of the face and much swelling which seemed to have its centre near the nose. The case seemed so obviously to be one of facial erysipelas that I notified it as such. Within two or three days a copious serous discharge from her nostrils began and continued for a week. As these symptoms slowly subsided the unusual course of the case led me to inquire further, and it came out that the infant had been vaccinated shortly before coming

here, and by this time a small sore was discovered at the left side of the tip of the nose, just within the nares. The discharge ceased and the swelling decreased and eventually only a small scar was left. In this instance it appeared likely that the infection was conveyed from the infant's arm to the mother's nose through the medium of a pocket-handkerchief.—I am, Sirs, yours faithfully,

Blackheath, June 23rd, 1900. WALTER KIDD, M.D. Lond.

"HORSE AMBULANCES."

To the Editors of THE LANCET.

SIRS,—Perhaps the ancient and loyal borough of Wigan can lay claim to having one of the most complete systems of ambulances of any similar town in the kingdom. When I tell you that there are stationed in the town and district no fewer than 24 horse ambulances and 12 hand-wheel ambulances it will be at once evident that both Wigan and the district are doing their share of the work indicated in THE LANCET. But this has been going on for 20 years. The ambulance movement has all along been voiced through the annual report of the Royal Albert Edward Infirmary and through the local press, and there has not been lacking that spirit of magnanimity and generous kindness on the part of friends of this hospital to provide what was needed to establish this excellent hospital corps of which we are justly proud. The medical men in the district have done their share in giving lectures on "first-aid and ambulance work" in the various works, so that within a circle with a radius of nine miles from this hospital you will find men who have profited by those lectures and have possessed themselves of certificates or medals granted for proficiency by the St. John Ambulance Association.

I am, Sirs, yours faithfully,

WILLIAM TABERNER,

General Superintendent and Secretary, Royal Albert
June 26th, 1900. Edward Infirmary, Wigan.

MIDWIVES' REGISTRATION.

To the Editors of THE LANCET.

SIRS,—The protest published in THE LANCET of June 16th from the Beckenham and Penge Medical Society regarding the conduct of the Cannon-street Hotel meeting contained in a letter of sympathy to Dr. Glover would not require an answer did it not contain the statement that the delegates of that society went there "prepared to submit some very carefully considered alterations in the Midwives Bill which they hoped might render it a useful measure and one which would safeguard the public and be acceptable to the general practitioner." Of these "carefully considered alterations" we heard nothing either at the preliminary committee meetings or at the meeting itself. And how can this statement be made consistent with this society's delegates (including Mr. Sturges) having composed and signed the following, which is an extract from a letter which accompanied the invitation to the meeting?

It is the opinion of the large majority of medical men, and particularly of general practitioners, who see most and know most of the class of work the Midwives Bill is intended to legislate for, that it is a measure likely to effect incalculable harm. Even if it provided, as it does not, for restricting to natural cases of labour only the legalised attendance of midwives, the harm would not be guarded against, for a natural case of labour requires complete scientific knowledge to diagnose and may become urgent and dangerous at any time between its commencement and completion. Since the study of midwifery has been changed, chiefly owing to the labours of the late Sir James Simpson and the Edinburgh School, from a despised art to an honoured science, the saving of life and suffering has been immense (as statistics will show) and the genus Mrs. Gamp, so powerfully exposed by Charles Dickens, has been disappearing by the ordinary process of evolution. That being so, the evil which we all recognise to exist seemed to be gradually curing itself; but the effects of this legislation, we fear, will be to revive it in a more dangerous form than ever existed before. The Medical Acts, which were drafted in the interests of the public, wisely ordained that medical men who are licensed to practise in any one branch of medicine or surgery (including midwifery) must show a thorough knowledge in all. Going absolutely against this principle the Midwives Bill will give a State-guaranteed qualification to women who can at most possess the little knowledge that is dangerous, which will deceive the public into thinking that in employing a midwife they are employing a properly qualified person to whom they are justified in entrusting their lives. We feel very strongly that this Bill has not been properly considered or the effect it will have sufficiently weighed; and although we wish all who follow the calling of nurse to the sick could be properly trained and even certificated by law we are convinced that no measure which provides for the attendance of lying-in women without proper medical supervision can fail to be productive of a largely increased death-rate among women and infants and also do much to encourage criminal practices.

This is the rational and consistent position which we still hold and the one from which they have apparently been washed back by the dogmatic ground-swell of medico-political orthodoxy.

I am, Sirs, yours faithfully,

Sydenham, June 17th, 1900. F. LORIMER HART.

HEALTH AND SANITARY CONDITION OF ABERDEENSHIRE: BRAEMAR SPECIAL DISTRICT.

To the Editors of THE LANCET.

SIRS,—In the issue of THE LANCET of June 9th, 1900, page 1682, under the heading of "Health and Sanitary Condition of Aberdeenshire," at the end of the paragraph it is stated that "scavenging has improved in all the districts except Aboyne, Torphins, and Braemar, '*where nothing has as yet been done.*'" This statement is incorrect as regards the Braemar district, where a scavenger has been employed for the last three years and paid a regular salary during that time. I have, therefore, to ask you to contradict the latter part of the paragraph in so far as Braemar district is concerned.

I am, Sirs, yours faithfully,

WM. MICHIE,

Clerk to Braemar Special District.

Tullochcoy, Crathie, June 23rd, 1900.

THE RAILWAY MEDICAL OFFICERS' UNION.

To the Editors of THE LANCET.

SIRS,—It will be a very great convenience and will considerably aid organisation amongst railway medical officers if you will allow me to ask those who previously communicated with me, as well as those who have not, if they will let me know as soon as possible whether they could attend a meeting at Ipswich during the session of the annual meeting of the British Medical Association, with a view of instituting a union for the protection and promotion of the interests of railway medical officers.

I find that the medical officers of some railway companies are already organised, having had associations for some years. If they will attend the proposed meeting their experience will be of use, not only in assisting the medical officers of other companies to form associations on their respective lines, but also in forming the national union.

There is nothing revolutionary intended in the proposed union. The objects are (1) to promote unity and good fellowship; (2) to compare the rates of payment of the different staffs; (3) to consider whether there should be a separate payment for minor surgical injuries as well as to consider the special fees for fractures, dislocations, &c.; (4) to consider the question of gratuitous or paid ambulance lectures; (5) to consider how we can protect each other from those who are seeking the appointments which we hold; and (6) finally to consider any other means which may be proposed from any member or staff likely to be for our mutual benefit.

If I hear from a sufficient number of medical officers I will make arrangements for a meeting at Ipswich and shall be glad to know what day and hour during the annual meeting will be most convenient for each writer. I not only wish to hear from those who have made arrangements to go to the annual meeting of the British Medical Association, but those who could make it convenient to run there specially for this meeting but have not the time at their disposal to remain for any other meeting. Our meeting will not be restricted to members of the British Medical Association. I shall be glad to hear from those unable to attend a meeting at Ipswich whether they are favourable to the union and will give it cordial support, in all cases stating what company they are attached to and any details connected with their appointment that may be of interest and utility to their colleagues. All communications will be regarded as confidential, facts only being made use of, not the names of the authors.

I am, Sirs, yours faithfully,

G. H. BROADBENT,

Medical Officer G.N. and G.C.Ry. Cos.

8, Ardwick-green, Manchester, June 25th, 1900.

CHELTINE FOODS.

To the Editors of THE LANCET.

SIRS,—Referring to your remarks on Cheltine Foods in THE LANCET of June 16th, when treating of the exhibits at the Medical, Surgical, and Hygienic Exhibition, we beg to state that the wording on the tins of diabetic food "Cannot turn into sugar" was a clerical error. Correction was made on our pamphlets two months ago but was unfortunately omitted on the diabetic tins. This has now been corrected, and in future all tins containing diabetic food issued by this company will have written on them "Will not form diabetic sugar."—We are, Sirs, yours faithfully,

WORTHS FOODS SYNDICATE, LTD.

Cheltine Works, Cheltenham, June 18th, 1900.

"CORONERS' INQUESTS ON PERSONS DYING UNDER ANÆSTHETICS."

To the Editors of THE LANCET.

SIRS,—On reading your excellent leading article in THE LANCET of June 23rd, p. 1811, with regard to the questions propounded by Dr. Danford Thomas to be put, I presume, to medical witnesses at future inquests on deaths from anæsthetics, I could not help wondering whether the well-known coroner can possibly have any practical knowledge of the difficulties of complying with the suggestions which his questions would imply. A large number of the cases in which a general practitioner is called to give an anæsthetic are cases more or less of emergency, perhaps in some country village miles away from any professional assistance, cases in which there would be no time to make the thorough examination of the patient and the surroundings as suggested, or even if that were possible cases in which even unfavourable conditions might have to be ignored more or less. By all means let us have scientific inquiry with regard to anæsthetics, but I cannot help thinking that the general practitioner is being somewhat hampered by all the minutiæ of detail expected of him, which will make many men almost shrink from giving an anæsthetic. For instance, one of the questions suggested by Dr. Thomas is the experience of the anæsthetist. True, the more experience an anæsthetist has had the better for the patient and everybody. But it is not possible for all to have the same experience and many a young general practitioner may be called upon as a bounden duty to give an anæsthetic whether he has had experience or not. If the questions propounded by Dr. Thomas are to be put on every occasion of a fatality and the jury are to give their verdict according to the answers received, I for one, although I have had a fairly large experience of anæsthetics—i.e., ether and chloroform—hope I may never have to give any more if I am to run the risk of having my professional credit upset by a jury who are certainly not a competent tribunal on those matters.

I am, Sirs, yours faithfully,

June 26th, 1900. M.B., M.R.C.S.

THE NATIONALISATION OF TRINITY COLLEGE, DUBLIN.

To the Editors of THE LANCET.

SIRS,—Although I am unable to discern that the columns of a medical journal are the proper arena for the discussion of the Irish Catholic University question I feel bound to contest your conclusion, as set forth in an annotation in THE LANCET of June 23rd, p. 1815, that the proposal to nationalise Trinity College is "as useless as it is impracticable." I hold, on the contrary, that the nationalisation of the College, which I understand to be the same thing as the complete de-sectarianising of it, would be most useful because it would remove for ever the only complaint which Irish Catholics can justly make against the Dublin University system. Trinity College is, indeed, national already but for one thing. Its education in arts, science, medicine, law, and engineering, and its degrees in these faculties, are as freely open, with all the honours of the higher grades, to Roman Catholics as to the students of any other religion. No questions are asked or any exclusion practised towards them, and many Roman Catholics who have passed through Trinity with honour have testified to that fact, and no grievance can be truthfully averred respecting the educational treatment of students of that or any other Church. There is, however, that within the University and its College which unfortunately affords grounds for the complaint that Roman Catholics are liable to be exclusively dealt with therein. The atmosphere is very strongly redolent of Protestantism, and the governing body, the Professors and Fellows and officials, are almost universally Irish Churchmen, and it would be no more reasonable to expect Irish Churchmen to feel comfortable in their studies at Maynooth than to expect Roman Catholics to feel comfortable at Trinity.

That the Protestant atmosphere is so thick in Trinity is due not to any desire on the part of the Protestants to boycott the Roman Catholics but to the refusal of the Catholic priesthood to allow their co-religionists to bear a hand in any form of Irish education over which they have not, practically, despotic control. They have pursued towards Trinity the same policy which they pursued towards the Queen's Colleges, using every effort to make them failures and then screeching that the institutions should be superseded because they *are* failures. No one in Ireland, I imagine, entertains any hope that the Catholic hierarchy will abandon this position until they must and the parade of imaginary grievances will no doubt continue, but if the nation recognises that the education of the people ought not to be chopped up for division amongst a number of sects and compels the Government to turn a deaf ear to the clamour of the Irish priests and to force Trinity to accept liberalisation and desectarianism the Irish University question will be solved as the nation desires. It may be true, just at present, that "no statesman of any party would attempt to interfere with Trinity College," but when we had a strong hand at the Ministerial helm instead of the time-serving Government which now rules the attempt was made and nearly succeeded and there is no doubt that the liberal voice of the British electors would now support any Government which would have the courage to ignore the assumed indignation of the Irish priests and proceed to eradicate all traces of sectarianism from the University of Dublin. To effect this latter purpose it would be essential to transfer in its entirety the Divinity school of Trinity College to the outside custody of the Church of Ireland with a grant to that Church equivalent to that now made to the sectarian education at Maynooth and elsewhere. Without this the Roman Catholics will always have a reasonable grievance and the priests a good cry for a separate Catholic university, and I see no insuperable difficulty in doing it whenever the nation has a Government whose regard for justice and for the interest of the people will restrain it from trafficking with parties for votes.

I am, Sirs, yours faithfully,

June 26th, 1900. A.M., M.D. DUB. UNIVERSITY.

PLAGUE IN AUSTRALIA.

(FROM A SPECIAL CORRESPONDENT.)

THE returns of plague in Sydney for the week ending May 12th are as follows: remaining at the beginning of the week, 99; admitted, 23; discharged, 26; died, 10; remaining at the end of the week, 86. The totals up to the end of the week are as follows: cases, 216; deaths, 73; discharges, 57. "Contacts," 1242; "contacts" remaining, 153; cases among "contacts," seven. The population of Sydney should, perhaps, have been mentioned at an earlier date; it is about 456,000. Its composition is a matter much misunderstood in some quarters, in which it seems to be supposed to resemble that of South African towns. The truth is far otherwise. Australia is a white man's country, and it will not be the fault of the present generation if it does not remain so. The people are white, European or of European descent on both sides, and in preponderating proportion British. The only coloured people present in number of importance, in relation to vital statistics for instance, are the Chinese; but only 3465 were enumerated at the census of 1891, since when restrictive laws have prevented their immigration, hence nearly all the plague patients have been whites which might be inferred also from the gross death-rate. Only five coloured people have suffered; all of them were Chinese. Three have died, while two are likely to die.

Another point on which something may be said usefully is as to the completeness of the returns which have been given

from week to week. No doubt is entertained in any quarter that they are complete. That the first case discovered was the first case in reality is most probably the truth. It was certainly—the word is here used deliberately—not preceded by any important number of minor or of ambulant cases; one or two such there may have been; more there surely cannot have been. And if early in the epidemic it should be guessed that there may have been some oversight of declared or bubonic cases they diminished very quickly at all events; but the general feeling is that there never can have been more than (say) half a dozen at the outside. This is the opinion of all in a position to judge—of the resident staffs at the hospitals, for example, and of the staffs of the department of public health. As regards the latter, no doubts are entertained by it; it has the confidence of the profession which knows that its members will be rationally dealt with. A good many cases have been reported rather late, and even occasionally after death under medical care; but no one who has been puzzled by early symptoms fears that he will be rudely brought to book under the law, or that he will be asked publicly to explain his delay in reporting. On the other hand, all have learned that anything like wilful concealment or gross delay in reporting (in the case of other infectious diseases dealt with under the same law) is dealt with strictly. But the distant critic unacquainted with local conditions will be inclined to argue that wilful concealment of cases has occurred. He will refer to the early cases—if, indeed, cases of plague they were—in Calcutta. But the truth is that no evidence which would enable a reader to form an opinion was adduced regarding them:[1] a bare statement that the bacillus was observed comprised it. What, exactly, it was that was seen was not described; and whatever the bacteriological competency of an observer may be that, in a case where the possibilities of mistake are many, is not enough. From other quarters the evidence of precedent cases of ambulant plague—those, namely, in which there is recognised glandular swelling—is that practitioners remembered meeting with such cases which "must have been" plague, only after plague had become epidemic. Now, at first, attention was often drawn in Sydney to instances of glandular swelling, but they were almost always easily traced to one or other of the recognised causes and in reality were reported for protection; hardly ever had the patient any symptom of general illness, but the swelling was chronic, or at least of long standing. In one or two cases the cause of the swelling could not be made out, but then the most careful consideration and bacteriological examinations failed to afford the slightest support to a diagnosis of plague. In short, with as thorough a knowledge of plague as could be got from epidemiological and clinical study of accounts of the disease and its outbreaks, acquired long before the disease actually appeared here, nothing at all has been observed to support the notion that those causes of incompleteness in the epidemiological accounts which have existed or have been assumed in other cases have occurred here. The great importance of this matter in relation to certain etiological views is a good reason for writing upon it at some length.

There is little of interest to note except the diminished number of new cases for the week already shown above. The Millard house on having its floor taken up revealed a dry sandy soil and nothing else. The newly admitted cases show the same degree of virulence in the infection as at first on the average. Inoculation has recommenced; arrangements have been made for inoculating the inhabitants of the infected area and those employed there in preference to others, but comparatively little interest is shown by the public. On the first two days a few more and a few less than 100 respectively presented themselves.

May 15th.

[1] Papers relating to the Outbreak of Bubonic Plague in India to March, 1897.

THE DURHAM MEDICAL GRADUATES' ASSOCIATION.—The annual meeting of this association, followed by a dinner, is held alternately in London and Newcastle-on-Tyne. This year the turn of Newcastle came, very opportunely on the eve of the visit of the Prince of Wales. Many Durham graduates practising in London were present. The association is prosperous and betrays a warm affection for its *alma mater*. The dinner was held at the Grand Hotel, Barras Bridge, and was ably presided over by Dr. W. C. Beatley.

THE UNIVERSAL EXHIBITION AT PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

Opening of the International Congress Season.—Graphology.—Agriculture and Health.—Grocers and Health.—Women's Work and Health.—The Housing of the Poor.

THE season for international congresses has now fairly begun. There were only three such congresses in the month of May, but 23 are taking place during the course of this month. The congress which in the month of May attracted the most general attention was that of graphology; a fact which is not surprising when we remember how experts in handwriting quarrelled over the celebrated Dreyfus *bordereau*. I am not aware, however, that anything was said about the graphology of medical prescriptions though this was certainly a subject on which a very interesting paper might have been written, beginning with some account of the mystic invocation to Jupiter which heads a prescription and concluding with some sarcastic allusions to the art of illegibility. Among the congresses that have already been held this month was that of the friendly and benefit societies called Le Congrès de la Mutualité. When the medical profession is better organised it should contrive to have a voice at such gatherings so that the other side of the questions treated may be brought forward. As it was we were treated to panegyrics on the advantages of thrift and on the benefit and growth of organisations the principal object of which it is to provide for a rainy day. Of course all this is excellent so far as it goes, but to accumulate vast reserve funds at other people's expense is not quite so estimable a performance. That the working classes and the small trading classes should be praised for such foresight and economy as they have displayed is quite right and proper, but at the same time it should be known that a part of these funds is not the result of economy and saving but the direct profit obtained by sweating members of the medical profession. It does not suffice to say this outside; it should be repeated within such congresses, so that it might be heard and understood by those who are responsible for the widespread grievances that afflict a large section of the medical profession in most countries. Another important congress was that of the grocers. I have not much to say about this meeting beyond mentioning the fact that there was an imposing British delegation of over 100 members. Considering how at scientific international congresses, such as that of hygiene, Great Britain is often very feebly represented, I must confess to a feeling of discouragement when I found that the grocers manage these things much better than the medical profession. But the grocers had also some things to say that affect public health. They were loud and bitter in their complaints against the truck system and against trusts which not only ruined legitimate trade but which, by abolishing competition, placed the public at the mercy of the monopolists. Such monopolists could more easily foist unwholesome articles on to the public, or sell things at exorbitant prices. The delegates, though they represented the master grocers, very generally agreed that the hours of labour for their shop assistants were too long and that they should be reduced. In this respect England was mentioned as a model nation where there is not only complete rest on Sundays but generally a half holiday in the middle of the week. It would be worth while holding such congresses if for no other purpose than to spread this custom to other nations among whom the exaggerated duration of the day's work for shop assistants has a very detrimental effect on public health.

M. Casimir Perier, formerly President of the French Republic, presided over the Congress on Agricultural Education. He eloquently urged that every effort should be made to render education in agriculture at once attractive and easy, for it was most necessary to check the continual migration of the rural populations to the great towns. Though most of the speakers supported this view from the economical standpoint its importance as a question of national health and national defence was also admitted. It is from country districts that the best soldiers are recruited, and this for the simple reason that rural populations are healthier than town populations. In the name of the French Government M. Jean Dupuy, Minister of Agriculture, wished

the delegates welcome, so that the congress had a good set-off. Mr. Sutton represented the British Royal Agricultural Society, and there were influential delegations from the United States and most of the European nations. Here, then, was another opportunity, while keeping well within the programme of the congress, of propagating principles and projects of reform which would not only promote the interests of agriculture but also benefit the public health. The principal resolution adopted by the congress was in favour of teaching in universities and high schools those sciences which bear upon agriculture, such as chemistry, zoology, botany, geology, vegetable pathology, bacteriology, &c. Needless to point out, though the agriculturist would study bacteriology in view of preserving vegetable life and the lives of cattle, &c., he would not fail to realise that in many respects the same principles apply to the preservation of human life. The brotherhood of the sciences is an undeniable fact and a most beneficent fact, and hence sanitary reformers are well within their scope of action when they wish every success to the scientific agriculturist. Besides, on agriculture depends our food-supply and therefore it was but natural that several medical men should attend this congress. Dr. Cathélineau, for instance, read an interesting paper on the bacteriology of milk, insisting also that butter often contained the bacillus of tuberculosis and that therefore milk should be always sterilised. As the dairy industry depends on fermentation it should be conducted under conditions of the most perfect asepsis. There was also a good deal said about the cultivation of the vine and the necessity of legislation to prevent the adulteration of wine. The sale of cheap pure wine best contributed to prevent the evils of alcoholism, therefore a resolution was carried in favour of abolishing all local taxation (*octrois*) on wine. When natural wines became scarce and dear they were replaced by manufactured alcohols, with the result that there was invariably a great increase in drunkenness, crime, and insanity. The agriculturists in wine-growing countries had to be taught not only how to contend against the diseases that devastated the vineyards, but also how to employ such precautions in the making, bottling, &c., of wine that it would be able to travel and to keep without being strengthened by adding the more or less poisonous alcohols of commerce. Thus in many ways the Congress on Agricultural Education treated questions that might appropriately find a place in a congress of hygiene.

Then there has been an immense gathering of women—women politicians, women of science, and women authors and artists; but far more numerous than all these were the women engaged in works of charity and philanthropy. It was the Congrès des Œuvres et Institutions Féminines. I am not aware that there is a good equivalent in the English language for the word "œuvres." It means work, but work for a particular purpose or mission, and all charitable organisations come under this denomination. Now there are so many works of this description that from the very first the congress was hopelessly blocked by the reports brought by the delegates who individually were all naturally anxious to prove how very worthy of sympathy was their own particular mission. Those reports brought by the foreign delegates took up three-quarters of the sittings. Altogether there were more than 200 of such reports. In many cases only summaries could be read and it was rarely possible to discuss the points raised. Therefore the congress became terribly monotonous, yet these documents have a literary and historical value, but they are better suited for publication in a volume than for a congress. There was, of course, a great deal said about the care of children and about institutions affecting the same. A somewhat sharp discussion arose when Madame Dussaud urged that *crèches* should not be converted into institutions offering a premium on idleness. Therefore before admitting the children an inquiry should be made as to the position of the parents, but Mesdames Bazaine, Kauffmann, and Louise Dehor retorted that a little child or infant should not be made to suffer on account of the idleness or vice of its parents, and Mademoiselle Bonnevial protested that the object of day nurseries, &c., was not to punish bad parents but to save unfortunate children. The congress adopted various resolutions to increase the financial and other help given to poor mothers and to render it illegal for any woman to work during the first month following upon her confinement. Of course, the old arguments against the Contagious Diseases Act were brought forward again, but M. Trarieux and M. Bérenger, Senators, urged that such regulations were necessary for the preservation of public health. Madame Pognon, profiting by this division in opinion, attacked virtuous women for their want of sympathy with their fallen sisters, who were generally driven to a deplorable life not through any inherent vice of their own, but by the force of economical circumstances. It was not contempt but sympathy and a true understanding of the situation which alone would remedy the evil. In respect to this want of understanding of the true position of women, Mademoiselle Selma Riza attempted to show that Mahommedan women held a better legal position than Christian women. Mahomed was a great advocate of women's rights and also a great sanitary reformer. Consequently married women controlled their own property independently of their husbands, and if divorced retained the care of their children. On the other hand, as there is and can be no prostitution among Mahommedan women, Contagious Diseases Acts when employed in Mahommedan countries only affected the Christian populations. Unfortunately the instructions given by Mahomed that young women should be carefully educated had to a large extent been neglected, and consequently many Mussulman women had fallen into a condition of apathy and ignorance and led lives that might be considered as a sort of slavery. This was their own fault and contrary to the text and spirit of their laws and religion. A delegate from Alsace, Madame de Schlumberger, in regard to the question of morality thought that a mother should above all strive to remain the friend, companion, and confidante of her son during the critical period of adolescence. A mother should not fear from a mistaken feeling of modesty to speak of certain subjects, for it is on these very subjects that young men most need experienced advice. The congress adopted a resolution to this effect. In dealing with economic questions, which of course materially affect public health, for with extreme poverty sanitation becomes almost impossible, the congress adopted a motion in favour of what might be called a Woman's Homestead Act. Already in France it is illegal to seize for debts the bed and the implements of work, such, for instance, as a sewing-machine. These enactments should be enlarged so that homes cannot be so readily broken up. Another resolution adopted proposed to abolish all work for wages under the age of 16. Such is the nature of a few out of the enormous number of questions brought before this congress. They will suffice to show how the subjects treated often affected, directly or indirectly, the causes that bear upon public health.

The Congrès des Habitations à Bon Marché (artisans' dwellings and the housing of the poor) has also met this month and was presided over by M. Jules Siegfried, Senator and formerly Minister of Commerce. Mr. David Waterlow attended on behalf of his father, Sir Sydney Waterlow, who as chairman of the Housing of the Working Classes Committee in the British House of Commons was one of the honorary presidents of the congress, together with Mr. Geoffrey Drage, M.P. M. Siegfried in opening the congress expressed his sense of shame at the fact that so large a proportion of the peasantry still ignored the most elementary comforts and decencies of home-life. While in large towns there were block buildings where the rate of mortality attained the appalling figure of 80 deaths per 1000 per annum, yet the death-rate of the town as a whole might be even lower than 20 per 1000. To remedy this disgraceful loss of life sanitary reformers, architects, engineers, and financiers should come together and devise healthy dwellings where the rent charge should not exceed from 3 to 4 per cent. of the capital invested. Actually the rents paid amount to from 5 to 60 per cent. on the capital cost of the buildings. But if we were to reduce the profits of capitalists from 60 per cent. to 3 or 4 per cent. on moral grounds we must also make the tenants realise on moral grounds that they should not squander in unnecessary things what they should reserve for the essentials of existence. M. Siegfried concluded by quoting Jules Simon, who said: "Without home there is no family; without family there is no morality; without morality there are no men; and without men there can be no nation." M. George Picot, Permanent Secretary of the Academy of Moral and Political Sciences, read a lengthy paper on Artisans' Dwellings. He is an economist of the old school and fears State intervention. Nevertheless, he did admit that it might be useful and without peril to remove such legal obstacles as exist preventing the investment of capital which is locked up. In every other respect he argued in favour of existing conditions and it was difficult to see

where reform was to find a footing. Capital refused to be "moralised" and preferred high dividends. But if an outside influence should set a good example then investors might become reconciled to smaller profits in the face of such competition. M. Cheysson suggested that conflicting interests might be reconciled by a system of profit-sharing between proprietors and their tenants. The latter would then be less likely to injure the houses in which they dwelt. But this suggestion met with only scant support. M. Weber thought that the State was in any case quite justified in building homes for the aged and infirm. Reports were read describing what had been done in England—the Peabody buildings, the County Council common lodging-houses, &c. Lengthy arguments were held as to whether State or municipal intervention tended to paralyse private enterprise. M. Hector Denis, the well-known Belgian economist, was strongly in favour of municipal tenements and lodging-houses and was supported by many members of the congress, including several directors of private enterprises. The congress adopted a motion effecting a compromise and declaring that as circumstances differed greatly in the various countries the question of State intervention should be reserved for future congresses. But in any case the State must actively interfere to enforce all necessary sanitary regulations, and the congress determined to elect a permanent international committee to collect information.

Paris, June 24th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Cawnpore Plague Riots.—Improved Plague Mortality.—Birthday Honours.—The Anti-rabic Institute.

THE Local Government resolution recently issued explains the origin and course of the Cawnpore plague riots. There seems to have been a general fear of plague in the city and an ignorance of and uncertainty about the plague regulations. The compulsory removal to hospital and segregation of two cases seem to have inflamed the people and while they were gathering for a general meeting a false rumour was started about a boy being forcibly removed to the hospital to be burnt alive. The mob made for the hospital, murdered the head constable and five other men, and set fire to the huts of the hospital and segregation camp. A large assembly of the roughest elements afterwards took place on the parade-ground. As many of the men were armed with big sticks and were prepared for a disturbance the magistrate thought it wise to have them disarmed. Fortunately he arrived with the 5th Bengal Cavalry and had the ground cleared, but there was a great deal of stone-throwing. Thinking the disturbance was over the cavalry returned to barracks. The mob, however, broke out again and had it not been for the presence of the Volunteer Light Horse, who were compelled to fire on the crowd, there is no knowing what massacres might have taken place. The next day was more peaceful and conferences took place about the plague regulations. The inquiry showed that the people had not been sufficiently informed about the plague regulations, that the police were utterly useless, being apathetic and ignorant and without any information as to the state of feeling among the populace, and that the leading natives failed to lend any assistance and apparently gave covert support to the agitators.

I am pleased to be able to record a great reduction in the plague mortality throughout India. There were only 975 deaths in the whole of India last week. The Bengal Presidency had 388 deaths and the Bombay Presidency 519.

The following medical practitioners have come in for Birthday Honours:—Colonel Campbell, I.M.S., of Shillong; Captain C. H. James, I.M.S., of Jullunder; Miss Charlotte Adams, L.R.C.P. Edin., of Jodhpur; Miss Susan Campbell of Ajmere; Mrs. H. Smith of Jullunder; and Major Stevenson, I.M.S., of Allahabad, the two first-mentioned getting the Kaisar-i-Hind gold medal and the others the silver medal. I have not heard of any honours having yet been given to the plague medical officers who were appointed by the Secretary of State.

An Anti-rabic Institute for India is at last an accomplished fact. After numerous delays Government have stepped in and practically settled the difficulties. The Indian Chiefs' Victoria Jubilee Bacteriological Institute came to nought and the scheme for a Pasteur Institute has hung fire for years. The Royal Army Medical Corps, having an officer in Major D. Semple who had studied in Paris and Lille, determined to utilise his experiences, and the annual expense for sending soldiers to Paris was diverted for the new institute. The central committee of the proposed Pasteur Institute saw their opportunity and took over its control. With a capital of Rs. 70,000 and a yearly grant of Rs. 19,500 the expenses of the new institute ought to be fairly well met. The public may congratulate themselves that at last means are provided whereby European and native patients alike can be offered the best available treatment for the terrible disease of rabies.

May 24th.

The Famine, the Cholera, and the Coming Monsoon.—The Decline in the Plague Epidemic.

THE famine shows no signs of abatement and the total number of people under famine relief for the whole of India has now reached 5,700,000. The Central Provinces chiefly are affected. In the Bombay Presidency cholera has been decimating the labourers on the relief works. At Hadmatia there is a camp of 25,000 people and the disease is of a most virulent type. The scare has almost emptied the camp.

Intimately associated in interest with the present famine are the prospects of the coming monsoon. Unfortunately the forecasts are not favourable. The weather at Mauritius is reported as being more like that of April than of May, at the Seychelles the wind is unsteady, and the south-east trade winds between the two islands are unusually light, with less rain and sea than usual. These reports seem to indicate considerable delay in the advance of the south-east trade winds towards the Equator, and the current seems to be determined more than usual towards the Zanzibar coast.

The plague mortality continues to decline throughout India, only 746 deaths being reported for last week. From Bunder Abbas it is announced that plague has appeared at Kishm and that 18 cases have occurred since April 30th. The Australian papers report plague as prevailing at Sydney, Fremantle, Adelaide, Melbourne, and Brisbane. Rats teeming with plague have been found in Melbourne. There is also a death reported from Durban, the victim being an East Indian.

The trial of inoculation has been fairly extensive but in Bombay city, notwithstanding that the number of people inoculated has reached nearly 200,000, little impression seems to have been produced on the current outbreak. The prophylactic has been used this year in Karachi, Sholapur, Surat, and Aden.

May 31st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Tramps and their Children.

AT a meeting of the Chorlton Board of Guardians, held on June 22nd, the subject of the best mode of dealing with tramps and their children came up for discussion. A communication from the Coventry Board of Guardians was read, asking them to support the following resolution: "That the Local Government Board be asked to give the guardians permission to detain tramps for a period of seven days, and that while such tramps are performing the legal task of work their children should receive such elementary education as could be given by the proper officials." When one considers the results that follow the more systematic methods of the elementary schools, the effect of a week's tuition even by the most earnest and skilful teacher would not be very visible on such waifs and strays and would be dissipated by the time the next stopping-place was reached. Dr. J. M. Rhodes who has had much experience in, and thought much on, such subjects considered that there should be power to detain such children for at least six months and that the guardians should have authority to detain and educate them just as they had for children not under proper guardianship. This would no doubt be good for the majority of the children, but some would object to the interference with the parental relationship and its duties. Among the habitual tramps, however, the

former is but lightly regarded and the latter is not regarded at all, and the best thing that can happen to the children is to get free from their parents. But some of the homes for "waifs and strays" would be in many ways preferable to workhouse schools.

Anatomical Society of Great Britain.

The summer meetings of the Anatomical Society of Great Britain have been held this year in the Medical School, Owens College. At the close of the meeting on June 22nd Professor G. D. Thane of University College, London, proposed a vote of thanks to the Council of Owens College for their kindness in receiving and entertaining the members of the society. It was seconded by Professor A. M. Paterson of Liverpool and carried. In the afternoon Professor A. H. Young gave a garden party and in the evening the annual dinner took place. Mention should be made of the admirable arrangements for the meetings, the credit for which is due to Dr. Peter Thompson, the honorary local secretary for the Manchester visit.

Manchester Medical Staff Corps.

The Manchester Medical Staff Corps has by the services of the 85 men serving in South Africa earned the approval of the Director-General of the Army Medical Department. It appears that he inspected the companies at Aldershot and pointed out that there was so much sickness among the troops that for a long time more men of the department would be wanted, and he asked for additional volunteers. About 30 men have already volunteered for service from the Manchester companies, and they are being sent to Aldershot with all speed. It is expected that they will sail for South Africa on June 30th. It is pleasant to know that Surgeon-Captain Coates, to whom the Manchester corps owes so much, has been raised to the rank of surgeon-major.

Bar Parlours and Tuberculosis.

Dr. J. Wheatley, medical officer of health of Blackburn, in his annual report just issued, states that no places, excluding the workrooms of some trades, are more favourable to the spread of tuberculosis than bar parlours and other frequented rooms of public-houses. This is not to be wondered at when one considers the filthy habits as to expectoration too common among those who frequent these places and the neglect of cleanliness that often obtain with the people having the charge of the lower-class drinking-places. He urges most scrupulous cleanliness in the management of these places. He also says that the birth-rate has been steadily declining since 1872, and was last year the lowest on record.

The late Professor Thomas Jones.

A special meeting of the medical and surgical staff was held at the Manchester Infirmary on June 26th. A resolution was unanimously passed expressing their deep sense of the loss which the institution has sustained and their sorrow for the death of their late colleague Professor Thomas Jones. A further resolution was passed asking the chairman of the board, Mr. Hardie, to forward it to Mrs. Jones with expression of their sympathy with her in the irreparable loss which she has sustained. It need scarcely be said that the news of Professor Jones's death was received by the medical profession in Manchester and by a wide circle unconnected with the profession with the deepest regret. Strongly urged to accept the superintendence of the Welsh Hospital Professor Jones went to South Africa under a sense of duty which he felt unable to put aside. His departure was cheered by the good wishes of colleagues, friends, and students, and he went ready, if need be, to lay down his life for his country. The sacrifice has been made and in his grave at Springfontein rests all that is mortal of a brave man, one of the heroes of peace.

Hospital Organisation.

The board of management of the Manchester Royal Infirmary at their meeting on June 25th considered a communication from the Manchester and Salford Hospital Inquiry Association. The association thought that there was a considerable abuse of hospital charity from (1) the insufficiency of the means taken to investigate the circumstances of the patients; (2) the necessity under present conditions of showing a large return of work done, as estimated by the number of patients and consultations; (3) the tendency to accept trivial cases as suitable for continuous treatment; and (4) the custom at some special hospitals of treating cases outside the proper scope of their work. The association also recommended a conference of representatives from all the hospitals of Manchester and Salford with authority to create a united hospital board or to deal specifically with the causes of hospital abuse and to discuss the acceptance of contributions from patients. The board replied to the effect that they took reasonable and sufficient means to prevent the abuse of the charity; that there had not appeared to be any necessity for the infirmary to show a larger return of work than was actually done, a statement of which is given with the annual report; that the acceptance of all cases for treatment absolutely rested with the medical staff; and that the fourth question did not affect the infirmary. The creation of a united hospital board was not, in the opinion of the board, desirable, as they believed that each hospital committee was best capable of managing in its own way the affairs of the institution over which it had control.

June 26th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Epidemic of Typhoid Fever in Belfast.

THE epidemic of typhoid fever in Belfast is still with us and in the week ending June 21st 50 cases of the disease were notified. Two views as to the cause of this epidemic are put forward. The Public Health Committee say that the cause is the bad water-supply, and as evidence they point to the statements made by witnesses of the Water Commissioners (when they were promoting a Bill last year before a Parliamentary committee) as to the pollution of their catchment area at Stoneyford. To prevent this risk in the future the Commissioners obtained Parliamentary powers to buy compulsorily all farms the drainage of which might find its way into the Stoneyford reservoir. Now the Public Health Committee allege that this has never been acted upon and it is hinted that before the present outbreak there was a risk of typhoid excreta again reaching this reservoir. Other links in the chain of evidence that the present epidemic is water-borne are the facts that the places specially affected are on the direct supply from the Stoneyford reservoir and that, as stated in the public press, the water in the houses affected even to the naked eye is dirty and deposits on a handkerchief, as it filters through, a dark residue. But up to the present no scientific bacteriological evidence has been given as to the condition of the water in the affected houses. This form of laboratory examination takes time, but the Public Health Committee, alive to its great value, are not neglecting to have it done and Belfast is awaiting the result. The second view is that the disease is due to the soil being permeated with disease germs due to the defective drainage of so many of the jerry-built houses of Belfast; and, in truth, details brought before a meeting of the Public Health Committee on June 21st show an alarming state of affairs. It would appear that between April 25th and June 16th the drains of 819 houses in which typhoid fever occurred in the north division of the city had been tested. Of these, 431, or 52·6 per cent., were found in good order, and 383, or 47·4 per cent., were defective. In the south division of the city 731 houses in which typhoid fever occurred had been tested, and of these 342, or 46·8 per cent., were found to be in good order, and 389, or 53·2 per cent., were defective. Over 50 per cent. of the drains of houses where typhoid fever had not occurred had been found defective, and probably 50 per cent. of the drains of old houses are more or less defective, while the majority of the present cases of typhoid fever have occurred in a district where the houses are new and built on virgin soil. Now I think that these facts (and they were brought before the Public Health Committee at their meeting on June 21st) prove that sufficient attention in the past has not been paid to house sanitation in Belfast and that had a proper and effective supervision been exercised in the construction and arrangement of the drains there would have been far less typhoid fever. A single case of typhoid fever coming into a district where there is defective drainage will spread the disease, and with such admittedly defective sanitation is it any wonder that the city of Belfast is never free from the disease? The Public Health Committee may blame the water-supply and say that it is the cause of the epidemic, but the Water Commissioners may in

truth retort, If so, why is the epidemic not more general and may it not be more likely at the present time due to the acknowledged defective sanitary arrangements of so many houses in Belfast? Everyone knows that in Belfast typhoid fever is never absent—it seems to be endemic; but at times there is, as at present, an alarming recrudescence of the disease assuming the type of an epidemic. No theory of the prevalence of the disease will be sufficient which does not explain these facts. I think it is probable that there are two causes—the water and the defective drainage; and that neither the one nor the other is the *causa causans*, but that both take their share in giving rise to the disease. Unquestionably the present water-supply of Belfast is not good and that from the Stoneyford district is most suspicious. The Water Commissioners should push on rapidly with their new scheme which will bring a splendid supply of pure water from the Mourne mountains and in the meantime they should exercise their powers to buy out the farms in the neighbourhood of the catchment area at Stoneyford; while, on the other hand, the Public Health Committee must insist on the drainage of the houses of Belfast being made right and it is to be hoped that no more jerry-building (the great curse of Belfast in the past) will be permitted. All that is wanted is strictly to enforce the rules against such practices which already exist.

Municipal Honour to a Medical Man.

The Limerick Corporation on June 16th conferred the freedom of the city on Mr. Thomas Myles, M.D. Dub., F.R.C.S. Irel. He is a native of Limerick and was recently elected President of the Royal College of Surgeons in Ireland.

June 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Disinfection of Wells.

AT the meeting of the Academy of Medicine held on June 19th M. Delorme, the well-known military surgeon, gave a description of the methods employed by him for disinfecting the wells in the camp at Chalons. Steam pressure disinfection after the method of Neisser does not give the results claimed for it by that observer. According to him steam generated in a powerful generator under a pressure of five atmospheres should raise the temperature of the water to 95° C. and finally to 110° C. This process, Neisser considers, effects an absolute disinfection with great rapidity. It is, however, expensive, the average cost per well being 37 francs. Also it is not easy to carry out, for M. Delorme, employing a large Geneste-Herscher stove as a generator, could not raise the temperature of the water in the well more than from 20° to 30°. M. Delorme then had recourse to permanganate of potassium which in doses of from five to 10 centigrammes per litre destroys all organic matters as well as all living organisms. He estimated the quantity of water in the well and added the proper proportion of permanganate. A brown oxide of manganese is formed which is quite harmless and which can be precipitated by adding to the water a little powdered charcoal and fine sand previously sterilised in a stove. One part of charcoal should be used to three parts of sand. At the end of three-quarters of an hour thorough disinfection has taken place, the charcoal has been deposited, and the water is quite clear. A bacteriological examination carried out during a period of three months showed that the water after undergoing this process contained only an insignificant quantity of microbes—namely, 1026 per cubic centimetre—while before treatment the water contained 72,306 per cubic centimetre and had a most offensive smell. In another well, the water of which before treatment was very offensive and contained in addition 112,160 microbes per cubic centimetre, after treatment it contained only 150 per cubic centimetre. The alleged difficulty in the use of permanganate—namely, that it leaves in the water an amount of potassium which is dangerous to health, is groundless, for examination of the water after treatment shows only very slight traces of potassium. Besides, it is perfectly easy to use permanganate of lime instead of the potassium salt. M. Delorme concluded by saying that in his opinion this method was the best for the disinfection of wells, for it is easy, quick, and cheap, the cost being only about one franc per well.

A Forerunner of Pasteur.

A monument has just been unveiled at Teste de Buch to a humble French medical man who passed all his life from 1779 to 1851 in this little hamlet, but who was perhaps one of the most intelligent medical men of the century. He was the initiator of the Pasteur theory, and there is to-day but little to add to the brochure of 100 pages which he published in 1836 under the title of "Reflections sur les Virus." His name was Jean Hameau and he lived all his life devoted to the interests of his patients. He was almost the first to put vaccination into practice in the year 1801, and in 1812 he read a paper before the Society of Medicine at Bordeaux on the Transmission of Glanders (*Morve*) from a Dog to Man. In 1818 he discovered the existence of pellagra, a disease then completely unknown in France. It was not until 1847 that his work upon viruses appeared in the *Revue Médicale* and he died quite unknown. In 1884 M. Solles made the work definitely known to the inhabitants of Bordeaux; and in 1895 a second edition was brought out by the son of the author, with a preface by Professor Grancher in which full credit was given to the humble practitioner of Teste. Jean Hameau was veritably the first to formulate the nowadays triumphant doctrine of living and transmissible germs and of contagious viruses which reproduce themselves when sown in a favourable soil. He made many attempts to discover the germs of vaccinia and variola, of measles, and of scarlet fever, but without success; nevertheless he held firmly to his conviction. If only he had possessed the laboratory accommodation and means of investigation available at the present day the microbe theory of disease would have been established 50 years earlier than it was. To-day he is honoured by a bronze statue erected on the initiative of the medical men of the department where he worked, and toward the expenses of which the whole profession subscribed. The monument was unveiled on May 27th and orations were delivered, but it is impossible to avoid a feeling of sadness at the reflection that as in the analogous cases of Duchenne and Morvan, who were pathologists of the first order but who never rose from the ranks of humble practitioners, the spectacle is so often seen in France of men with brains and intellects far above the average who live unknown and whose work meets with no response simply because they do not belong to the official ranks of the world of medicine.

The Feeding of Tuberculous Patients.

At a recent meeting of the Hospitals Medical Society M. Letulle, physician to the Boucicaut Hospital, described the *régime* upon which he put his tuberculous patients. Every patient has six meals per diem. At 6 A.M. when they awake they have tea and milk. At 8 A.M. they have soup and meat powder. At 11 A.M. they have a breakfast composed of three different dishes. At 3 P.M. a lunch of cold meat is given. At 5.30 P.M. they have dinner, which consists of soup and three dishes, and at bedtime—namely, at about 8.30 P.M.—they have a glass of milk and some rusks. In addition some patients have extras, such as cream, eggs, and raw meat. Under this *régime*, together with rest, most tuberculous patients, whether in the first, second, or third stage of their disease, put on weight in a wonderful manner. Unhappily, however, after some weeks the weight remains stationary and occasionally decreases little by little to the amount at which it was when the patient was admitted. As a rule men derive more benefit than women from their stay in hospital, for in the case of the latter the recurrence of menstruation nearly always brings about a loss in weight. The practical conclusion to be drawn from these facts is that tuberculous patients should be transferred to the country as soon as their weight remains stationary.

June 26th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Reciprocity of Medical Practice.

THE intimation of the Privy Council to the General Medical Council that Part II. of the Medical Act of 1886 will be applied to Italy has been received with the greatest satisfaction by British practitioners resident here. This willingness on the part of Great Britain to grant the Italians the reciprocity of medical practice which the latter profess

to desire will, it is hoped, prevent the passing of the restrictive measures lately agitated for by certain Italian practitioners—measures which, had they become law, would have deprived foreign practitioners of all the privileges which they now enjoy. While it is far from certain that these privileges may not yet be withdrawn, the action of the Privy Council has, at all events, removed a powerful weapon from the hands of those here who founded their demand for the exclusion of British practitioners upon the alleged illiberality of the English law regulating foreign practice in Great Britain. It is even thought by some that the result may be the establishment of that equal and full reciprocity of medical practice between the two countries on which such stress was laid in the discussion of this question during the last session of the General Medical Council. When the recent dissolution of the Italian Parliament took place a Bill had been prepared proposing to limit still further than at present the rights of the foreign practitioner. Under the existing law any foreign practitioner may attend all foreigners indiscriminately. Under the proposed law only foreigners belonging to a country which grants reciprocity of medical practice to Italians could be attended by other than an Italian practitioner. Moreover, only foreign practitioners holding diplomas from such a country would have been permitted to practise in Italy. A double restriction would thus have been imposed by the new law. To British practitioners it would have probably amounted to prohibition, since the Italians do not admit that the British law in its present state permits them to practise in Great Britain; and even if it were not for this reason prohibitory the measure would have had the effect of cutting off the American practice which forms under existing conditions so large a proportion of the British practitioner's work. Although the proposed measure did not find favour among the better class of the profession here it would probably have passed in the form indicated, since its champion, Dr. Santini (who, by the way, has been re-elected by his constituency), is a man of considerable Parliamentary influence, and because the majority of the Chamber of Deputies would have been indifferent in the matter. Now, however, that such a clear pronouncement has been made by the Privy Council of the intentions of the British Government, the hope at least seems justified that a proposal so much at variance with the repeatedly expressed desire of the Italians themselves for reciprocity will not be revived, and that in any future legislation for regulating foreign practice in Italy the claims of British medical men to fair and liberal treatment will be fully recognised.

Award of the Balbi-Valier Prize.

The biennial prize of 3000 lire (nearly £120) which was founded by Balbi-Valier has been awarded by the Venetian Institute of Sciences to Professor Grassi of Rome for his work on the mosquito and its relation to malaria.

Medical Legislators.

Amongst those lately elevated to the rank of Senator of the Kingdom appear the well-known names of Professor Maragliano of Genoa and Professor Golgi of Pavia. Professor Sanarelli of Bologna has also been elected one of the Deputies in the new Parliament.

The Malaria Problem.

Dr. L. Sambon and Dr. Low, the two medical men entrusted by the British Government with the perilous task of testing the possibility of guarding against malarial infection in the Roman Campagna, have at length found a favourable place for their purpose. After rejecting various other localities as for one reason or another unsuitable, they have selected a spot about two miles distant from Ostia, between Castel Porziana and Castel Fusano, and within five minutes' walk of the latter place. The site of their hut is on the edge of a "stagno," or swamp, forming part of the royal hunting demesne of Castle Fusano, and left undrained in order to preserve the wild boar, water fowl, &c., which frequent it. The hut will stand close to a canal containing a luxuriant growth of algæ and other aquatic plants and within a stone's throw of a clump of pine trees, which forms the outskirts of the Castel Fusano pine forest. The few dwellings near are inhabited by peasants who constantly suffer from malaria and are infested by mosquitoes of the anopheles variety. Situated thus in the heart of the swamps surrounding the mouth of a large river, among the haunts of innumerable mosquitoes of the malarial variety and in a locality notorious as one of the most deadly of the fever-stricken centres of the Roman Campagna, this dread and unhealthy spot appears to offer ideal conditions for the carrying out of the interesting but dangerous experiment now about to be begun. The two daring investigators hope to have everything in readiness early in July; in the meanwhile their time is profitably occupied in studying the animal and insect life of the Campagna, collecting and examining frogs, lizards, bats, spiders, mosquitoes, and the like. They have already made some interesting observations, as, for example, that although the larvæ of anopheles are at this season apparently very few, the adult mosquitoes are collected in the houses in great numbers, being especially numerous near byres and stables. The King has graciously given his consent to the erection of the hut in the royal preserves, and the municipality of Rome are doing everything in their power to help the enterprise.

June 22nd.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Montreal General Hospital.

AT the annual corporation meeting of the Montreal General Hospital, held in the latter part of the month of May, Dr. F. G. Finley, the secretary, presented the annual report. It showed that the income of the year from the ordinary sources was $76,421.72 and the ordinary expenditure $81,570.75, an excess over receipts of $14,149.63. As compared with the previous year the expenditure shows an increase of $1032.24, while the income shows a decrease of $1605.23. The total number of indoor patients treated to a conclusion during the year was 2824, being 94 more than in the previous year. Of these 189 remained over from the previous year and 2810 were admitted during the current year. 176 remained in the hospital at the end of this hospital year. 2629 were discharged, 195 having died in hospital, thus making the total of 2824. In regard to the 195 deaths 106 of them occurred within the first three days of their admission, a result in great measure due to severe accidents, but some to advanced disease. The average number of patients in the wards during the year per diem was 167, a decrease of nine compared with last year. The average number of days in the hospital per patient was 21·3 and the aggregate number of days in the hospital for all patients was 60,078 days. As compared with the previous year the report states that while the number of patients treated this year had increased the average daily number has decreased, thus indicating a shorter average stay per patient and further indicating a more active service together with a less number of chronic and incurable cases. Of the indoor patients treated to a conclusion there were—males, 1795; and females, 1029; giving a total of 2824. The following is the classification as to religious beliefs: Protestants, 1273; Roman Catholics, 1213; and other religions, 339. Another interesting classification from the Montrealer's standpoint: citizens, 2330; strangers, 368; sailors, 115; and immigrants, 11. Of the 2824 patients treated during the year 1684 were native-born Canadians and 773 hailed from the British Isles. The death-rate has been 6·5 per cent., or if the 106 cases which died within three days were excluded 3 per cent. In the outdoor department there were 37,373 consultations, being an increase over that of last year of 2295. In the medical department there were treated 12,403 cases; surgical, 10,843; eye and ear, 6213; gynæcological, 1400; nose and throat, 2437; dermatological, 1902; dental, 60; and emergency, 2115. The ambulance made 1104 trips during the year. Dr. Charles W. Wilson, having been appointed surgeon to the Royal Canadian Regiment, has been granted leave of absence for active service in South Africa. His duties are at present being satisfactorily performed by Dr. Gilday. Dr. von Eberts, the medical superintendent, was re-appointed for another term. Mr. F. Wolferstan Thomas (since deceased) resigned the presidency, and Mr. James Crathern was unanimously elected to succeed him.

Canadian Army Medical Services.

Amongst medical men who take an active interest in our militia a good deal of satisfaction is being expressed that the Government of Canada has at last been able to get the medical service upon a proper and efficient footing. Almost since confederation in 1867 the medical officer has remained in the position that era in our politics found him up to the present time—a more or less of an ornamental appendage to

the battalion claiming his services. It was only through some personal influence or social status or political "pull" that preferment could be obtained, which all tended to emphasise the importance of placing the whole service under special organisation. Last year a general order emanated from the Militia Department at Ottawa and a scheme for organisation was proposed which has now been carried into effect. Through this order a medical staff has been established which consists as follows: one colonel (director-general), seven lieutenant-colonels, 17 majors, 22 captains, and 25 lieutenants. For the purpose of promotion the officers of the Army Medical Staff are considered as a distinct branch, and promotion from rank to rank is to take place upon the same principle as that in vogue in a regiment or corps. By this order, also, five bearer companies and five field hospitals were established on a peace footing. A bearer company is to consist of one major, two captains or lieutenants, one sergeant-major, one quartermaster-sergeant, one staff-sergeant-compounder, four sergeants, one bugler, four corporals, and 20 privates. The Halifax bearer company (No. 1 bearer company) is, however, to be kept on a war footing of 64 of all ranks. The following is the *personnel* of a field hospital: one major, two captains or lieutenants, one sergeant-major, two staff-sergeants, two compounders, two corporals, and 14 privates. Schools of instruction will be opened at once at various centres throughout the country by officers who have already qualified at the depôt of the Royal Army Medical Corps at Aldershot. Instruction will be given on infantry drill, Parts I. and II., manual of the Royal Army Medical Corps, regulations for army medical services, military hygiene returns and duties, military law, and equitation. At the close of these schools, which are to last one week, examinations will be held and two classes of certificate granted, a first class for those officers obtaining 70 per cent. of the whole number of marks and not less than 50 per cent. in any one subject; a second class to those who make 50 per cent. of the total and not less than 33 per cent. in any one subject.

Prepared for the Plague.

Owing to an outbreak of bubonic plague having been reported at Honolulu, and the undoubted appearance of the curse at San Francisco and the Diamond Head quarantine station on the Pacific coast of the United States, the eyes of the people of the Dominion have been turned with no little anxiety to our own territory in that quarter, wondering what are the facilities inaugurated by our Government for coping with the first appearance of the dread disease. The quarantine station is situated on our western shores at William's Head, under the superintendence of Dr. Watt, an active and efficient officer. This station is situated on a long narrow peninsula, distant about eight miles from British Columbia's capital, Victoria. The equipment of the station far outclasses anything of its kind in the Dominion of Canada and is said to rival, or in fact to be far superior to, any similar institution in the neighbouring Republic to the south of us. On the wharf is a moveable engine for the purpose of forcing sulphur fumes into and through the holds of the vessels, whilst the ropes which hold the visiting vessel to the wharf are carefully covered with funnel-like rat-catchers to prevent the landing of any of these long-tailed carriers of the infection. The formaldehyde process is also employed in disinfecting, and in addition there is a large tank holding over 3000 gallons of muriatic acid and bichloride of mercury contantly ready at any moment to spray the exposed surfaces of ships where fumigation would not be feasible. The arrangements are such that 600 Asiatics can be accommodated at one time. The hospitals occupy another portion of the grounds and are scientifically constructed on the pavilion plan and complete in all their arrangements. There is also a cheery home for first-class passengers at some distance from the common quarters. With such complete arrangements on our western confines the plague will have some difficulty in finding footing on Canadian or British Columbian soil.

Toronto, June 2nd.

VOLUNTARY NOTIFICATION OF PHTHISIS.—The Plymouth Town Council has adopted a scheme for the voluntary notification of phthisis, by which medical practitioners will receive a fee of 2*s.* 6*d.* for each notification in the case of private patients and 1*s.* for the notification in parish or dispensary cases.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Medical Anniversaries.

THE opening week of summer has been notable for the medical anniversaries which took place at Atlantic City, a favourite health resort on the Atlantic coast in the vicinity of Philadelphia. First came the New Jersey State Medical Society with papers and discussions on subjects of a local interest. Then came the "Confederation of Examining Boards," an organisation comprising all the State Examining Boards of the United States. These boards are devoted to the examination of persons intending to practise in their respective States and are responsible for the enforcement of the laws regulating medical practice in the several States. This was the tenth annual meeting of that body and it was very gratifying to learn of the progress of the reforms in the educational qualifications of practitioners throughout the country. In every State these boards are gradually raising the standard of education and thus sifting out the uneducated applicants in accordance with the newly-enacted laws of the States. Perhaps the most interesting and useful discussion was as to the steps to be taken to establish a uniform standard of preliminary requirements. As the General Government has no power to fix a standard of educational qualification it is of the first importance that the several States should come to an agreement and adopt a uniform standard. To that end this confederation of boards is properly exerting all its energies and has the support of the entire profession. The American Academy of Medicine, which admits to its membership only collegiates, was entertained with a variety of papers on ethical and scientific subjects. The American Medical Publishers' Association, the American Medical Editors' Association, and the Association of American Medical Colleges also held annual meetings at the same time and place. There were several other minor medical societies in session, but the great centre of attraction was the American Medical Association, which held its fifty-first annual meeting during four days. Indeed, it was the occasion of the meeting of this association that drew so many other societies to this city. The membership of the association numbers about 9000 and there were in attendance nearly 1000 physicians. The President, Professor W. W. Keen of Philadelphia, in his address discussed subjects relating to the welfare of the association and then dwelt at length upon the "needs for endowments of medical schools." He stated that in 1894 the charitable gifts and bequests in the United States amounted in round numbers to $20,000,000, in 1895 to $29,000,000, in 1896 to $34,000,000, in 1897 to $34,000,000, in 1898 to $24,000,000, and in 1899 to the enormous sum of nearly $80,000,000. Only a small portion of this amount has been bestowed upon medical schools. It was mostly given to colleges, theological schools, hospitals, museums, and libraries. He compared the theological and the medical schools. In 1898 84 theological schools reported endowments of $18,000,000 and 711 similar schools reported no endowment. In the same year 19 medical schools reported endowments of $1,906,072, while 151 medical schools reported no endowment. Yet in 1899 there were only 8000 students of theology for whom this enormous endowment was provided, as against 24,000 students of medicine, with a slender endowment of less than $2,000,000. Each theological student had the income of an endowment of $2250 provided for his aid, while each medical student had the income from $83. As against 171 chairs of theology, all endowed, there were only five in medicine. He recommended that endowments of medical colleges should be classed in three categories—namely, first, the endowment of professorships; second, the endowment of the laboratories; and third, the endowment of post-graduate scholarships and research fellowships.

Typhoid Fever among the American Soldiers in 1898.

Professor Vaughan of the University of Michigan and late Division Surgeon United States Volunteers has reported the results of the commission appointed by the Surgeon-General to study typhoid fever as it appeared among the American soldiers. In accordance with instructions this commission visited the national encampments and inspected most of the regiments. It spent about 18 months in an examination of the medical records of these commands and accumulated a vast amount of information which is embodied in a report

about to be submitted to the Surgeon-General. The conclusions of the commission are as follows. Every regiment in the United States service during 1898 developed typhoid fever. More than 90 per cent. of the volunteer regiments developed typhoid fever within eight weeks after assembling at the state encampments. Most, probably all, of the regular regiments developed typhoid fever within less than eight weeks after going into camp. The fever not only appeared in every regiment in the service, but it became epidemic both in the small encampments of not more than one regiment and in the larger ones consisting of one or more corps. It became epidemic in camps located in the Northern as well as those located in the Southern States. Neither the miasmatic nor the pythogenic theories of the origin of typhoid fever is supported by these investigations, but they do confirm the doctrine of the specific origin of typhoid fever. Camp pollution was the greatest sin committed by the troops of 1898. It may be stated in a general way that the number of cases of typhoid fever in the different camps varied with the method of disposing of excretions. The tub system of the disposal of fæcal matter and the regulation pit did not prove satisfactory in permanent camps. Infected water was not an important factor in the spread of typhoid fever, but flies undoubtedly served as carriers of infection. It is probable that the infection was disseminated through the air in the form of dust. A command badly infected by typhoid fever does not lose the infection by simply changing the location, for it carries the specific agents of the disease in the bodies of the men, in their clothing, bedding, and tentage. About one-fifth of the soldiers in the national encampments of the United States in 1898 developed typhoid fever and army surgeons correctly diagnosed a little less than half the cases. The continued fever recognised among the soldiers the commission decides was typhoid fever. The belief that errors in diet with consequent gastric and intestinal catarrh induced typhoid fever is not supported by these investigations. The percentage of deaths among cases of typhoid fever was about 7·5. The deaths from typhoid fever were more than 80 per cent. of the total deaths.

Victims of Lightning in the United States.

The Superintendent of the United States Weather Bureau states that the loss of life by lightning in this country last year was greater than in any year since statistics began to be collected. 562 persons were killed instantly or suffered injuries from which death soon resulted and 800 persons were injured, many of them suffering from physical shock, others from painful burns, and some from temporary paralysis of portions of the body. Paralysis of the arms or legs was the most common form of injury. The greatest number of fatalities, or 45 per cent., occurred in the open; the next greatest number, or 34 per cent., occurred in houses; 11 per cent. occurred under trees; and the least number, 9 per cent., happened in barns. A number, mostly women, were killed while taking clothes from wire lines or while near the lines during a thunderstorm.

Death of Dr. Edward O. Shakespeare.

This eminent man of science died suddenly from angina pectoris on June 1st, aged 54 years. Dr. Shakespeare devoted himself in his earlier years to ophthalmic surgery, to which he made some notable contributions. Later he became interested in sanitary investigations and on one occasion was commissioned by the Government to visit India and other countries for the purpose of reporting on cholera. The results of a year's study of cholera in the Delta of the Ganges and the chief cities of India were embodied in a very voluminous report, published by Government, which has been regarded as an authority on the question of the propagation of that disease. In 1894 he was commissioned to attend the Ninth International Sanitary Conference which was called by the French Government and which met in Paris. He took a leading part in that Conference and many of the rules adopted by that body governing the pilgrimages to Mecca were advocated by him. During the war with Spain Dr. Shakespeare was appointed by the Surgeon-General one of a commission to investigate the causes of typhoid fever among the soldiers in camp. His last days were spent in the completion of the report of the commission, which is a work of great magnitude and importance.

Responsibility of a Hospital for the Acts of a Nurse.

A verdict of £10,000 has been obtained against St. Vincent's Hospital of this city by a patient who was severely burned after an operation by a hot-water bottle placed against her leg while she was still under the influence of ether. It appeared on the trial that the person who placed the bottle against her leg was not a trained nurse but a pupil in the defendants' training school. The defence was based on the fact that the hospital was devoted to charity and on that plea chiefly two previous juries had failed to convict of culpable negligence. It was proved, however, that this patient was treated in the "pay ward" and that the plea of charity did not apply to her case and hence the verdict was against the hospital.

The Progress of the Bubonic Plague.

It is becoming daily more and more apparent that this pest can be arrested and stamped out even where all the conditions are most favourable for its propagation when modern scientific methods of sanitation are intelligently and rigorously applied. The outbreak in Honolulu is a striking instance of the enormous value of a well-appointed and well-equipped health organisation in a municipality which is allowed to exercise its authority with a free hand. The infection of the plague was there introduced into a community peculiarly susceptible by its location, its filthy habits, and its reckless opposition to all sanitary rules and restraints. It began to spread like fire in tinder and would, judging by its previous history, soon have involved the whole native Chinese and Japanese population. But the health authorities came at once to the rescue, and, like a well-organised fire department, first directed all their energies to the task of isolating the infected from the uninfected, and then attacked the infection itself. The result has justified measures that were regarded as unnecessarily severe, for the plague was at once brought under control and then exterminated. The same result has been secured at San Francisco and in a measure in Manilla. The lesson that we have learned will prove of incalculable value, not only in our future contests with this oriental pestilence, but with all other communicable diseases.

June 18th.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE following were among the principal amounts received at the Mansion House in aid of this Fund up to noon on Thursday:—

	£	s.	d.
St. Michael's, Chester-square	1156	0	0
Chislehurst Parish Church (including £100 from Mr. Richard Foster)	290	0	0
St. Paul's Presbyterian Church, Westbourne-grove	103	0	0
St. John's Presbyterian Church, Kensington	82	0	0
St. Paul's Cathedral	253	0	0
St. John's Wood Presbyterian Church	114	0	0
All Saints, Ennismore Gardens	487	0	0
Blackheath Congregational Church	154	0	0
St. Stephen's, South Dulwich	191	0	0
Union Chapel	130	0	0
St. Alban's, Streatham	182	0	0
St. Mark's, North Audley-street	197	0	0
All Saints, North Peckham	170	0	0
"F. H."	1000	0	0
St. Barnabas, Addison-road	100	0	0
St. Mary's, Kilburn	114	0	0
St. James's, Kilbrook	219	0	0
Holy Trinity, Sydenham	197	0	0

The total amount received by noon on Thursday, July 28th, was £24,000.

WELLS, SOMERSET.—At the meeting of the Wells Town Council held on June 18th it was decided to carry out the septic system of sewage disposal at an estimated cost of £4500.

THE NEW BELGRAVE HOSPITAL FOR CHILDREN.—The foundation-stone of this institution was laid on June 27th, by the Princess Henry of Battenberg. The site, which adjoins St. Mark's Church, Kennington, is the centre of a poor and populous district. £17,000 of the £50,000 required for initial expenses have been provided. The cost of the new site is £4000; the centre block and west wing will cost £25,000, the east wing £8000, the south wing £6000 and the out-patient department £5000. It is intended in the first instance to erect the centre block and west wing and the out-patient department. Purses to the amount of £200 were received by her Royal Highness.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In June the following candidates passed in the subjects indicated:—

Surgery.—J. M. Anderson, Aberdeen and Middlesex Hospital; J. R. Clemens, St. Thomas's and London Hospitals; R. V. Cowey (Section II.), Edinburgh and St. Mary's Hospital; W. A. C. Cox (Section II.), St. Mary's Hospital; H. J. De Saram, Middlesex Hospital; W. D. French (Sections I. and II.), and T. R. Griffiths, University College Hospital; J. H. Kellgren (Section II.), Cambridge and St. George's Hospital; B. Lewitt and A. H. L. Newstead, St. Mary's Hospital; W. P. R. Newth, St. Thomas's Hospital; E. C. Pratt, Birmingham; and A. T. Spanton (Section I.), Cambridge and St. George's Hospital.

Medicine.—E. A. Dunn (Section I.) and E. Evans (Sections I. and II.), Royal Free Hospital; A. W. H. Grant (Sections I. and II.), Charing-cross Hospital; J. H. Kellgren (Sections I. and II.), Cambridge and St. George's Hospital; J. Klein (Sections I. and II.), St. Mary's Hospital; B. Rowlands, St. Bartholomew's Hospital; M. H. Style (Sections I. and II.), Royal Free Hospital; and T. Young (Section II.), St. Bartholomew's Hospital.

Forensic Medicine.—E. A. Dunn and E. Evans, Royal Free Hospital; A. W. H. Grant, Charing-cross Hospital; J. H. Kellgren, Cambridge and St. George's Hospital; J. Klein, St. Mary's Hospital; G. R. Lucas, Charing-cross Hospital; S. Page, Birmingham; B. Rowlands, St. Bartholomew's Hospital; M. H. Style, Royal Free Hospital; and T. Young, St. Bartholomew's Hospital.

Midwifery.—S. F. Cheesman, Charing-cross Hospital; W. T. Colyer, Cambridge; M. B. Dawson, Middlesex Hospital; E. Evans, Royal Free Hospital; F. J. F. Jones, Guy's Hospital; J. Klein and A. H. L. Newstead, St. Mary's Hospital; A. T. Spanton, Cambridge and St. George's Hospital; M. H. Style, Royal Free Hospital; and H. V. Swindale, Middlesex Hospital.

The diploma of the society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—Messrs. J. M. Anderson, H. J. De Saram, W. D. French, T. R. Griffiths, J. H. Kellgren, B. Lewitt, W. P. R. Newth, and T. Young.

UNIVERSITY OF CAMBRIDGE.—At the examinations for medical and surgical degrees, Easter Term, the following candidates were successful in the subjects indicated:—

THIRD EXAMINATION.

Part I.—G. F. Barham, B.A., and A. E. Bolington, M.A., Caius; A. R. M. Brenan, B.A., Trinity; J. M. Brydone, Jesus; F. J. Child, B.A., Christ's; H. N. Clarke, B.A., and J. S. Clarke, B.A., Caius; J. G. Cooke, B.A., Sidney Sussex; K. E. Crompton, B.A., Caius; G. W. Deeping, B.A., Trinity; J. B. Dunlop, B.A., Sidney Sussex; W. E. M. Elle, B.A., King's; A. Emerson, B.A., Caius; R. L. V. Foster, B.A., King's; T. B. Gilbart-Smith, B.A., Trinity; W. H. C. Greene, B.A., Corpus Christi; E. B. Leech, B.A., Christ's; N. Maclaren, B.A., Trinity; A. S. Mellor, B.A., King's; C. H. Miller, B.A., J. C. Newman, B.A., and G. H. Orton, B.A., Trinity; T. W. Paterson, B.A., Caius; J. S. S. Perkins, B.A., St. John's; J. C. S. Rashleigh, M.A., and L. Reynolds, B.A., Trinity; H. H. Riddle, B.A., Peterhouse; J. C. A. Rigby, B.A., Caius; E. W. S. Rowland, B.A., H. Selwyn; L. B. Scott, B.A., Christ's; G. A. C. Shipman, B.A., Trinity; J. L. Timmins, B.A., Emmanuel; R. H. Urwick, B.A., Trinity; H. Walker, B.A., King's; T. H. E. Watts-Silvester, B.A., and R. F. Williams, B.A., Caius; W. W. Wingate-Saul, M.A., Trinity; and H. C. S. Woodward, M.A., Downing.

Part II.—S. Bousfield, M.A., Caius; J. Bradford, Emmanuel; H. P. Bradley, B.A., and G. V. Bull, B.A., Caius; T. Burfield, B.A., Emmanuel; C. J. Coleman, B.A., Trinity; B. J. Collingwood, B.A., Caius; W. S. Darby, B.A., and W. M. Fletcher, M.A., Trinity; J. H. P. Fraser, B.A., Jesus; O. F. F. Grünbaum, M.A., Trinity; J. Gutch, M.A., Christ's; D. G. Hall, B.A., Emmanuel; A. C. Hill, M.A., Trinity; T. E. Holmes, B.A., G. F. Lobb, B.A., and J. L. Lock, B.A., Caius; J. W. Malim, B.A., Christ's; H. N. Matthews, B.A., J. C. Matthews, B.A., and F. J. Nicholls, St. John's; L. J. Paton, B.A., Caius; A. C. Pearson, B.A., Sidney Sussex; J. H. Philbrick, B.A., and G. R. Slade, M.A., Trinity; J. G. Taylor, B.A., and T. S. Taylor, B.A., King's; R. A. Walker, B.A., Clare; and A. Whitmore, B.A., and W. M. Willoughby, B.A., Caius.

The Council of the Senate have nominated Professor Sir Michael Foster, K.C.B., to represent the University on the Council of the Jenner Institute of Preventive Medicine.—Mr. A. W. Hill, B.A., King's College, and Mr. L. Lewton-Brain, B.A., St. John's College, have been appointed Demonstrators of Botany.—Mr. H. Nicholls, M.A., of St. John's College, was on June 19th admitted to the degree of M.D.—The Harkness Scholarship in Geology and Palæontology has been awarded to Mr. E. E. Walker, Trinity College.—The Professor of Pathology announces a series of ten courses of instruction in Pathology, Morbid Anatomy, Bacteriology, &c., to be given during the Long Vacation, beginning on July 5th.—The "Summer School" of Medicine for qualified practitioners, as announced last week, has been abandoned owing to the small number who intimated their wish to attend it.

UNIVERSITY OF BRUSSELS.—At the June examination the following practitioners satisfied the examiners and obtained the M.D. degree:—

W. Grantham Hill, B. Burnett Ham, J. L. Atkinson, and W. Gilbertson, London; C. S. Davies, Bishops Stortford; T. E. Pallett Earle Colne; G. H. Brand, Northampton; and Collingwood Fenwick, H. Hipwell, and S. Whitaker, London.
There were 13 candidates.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—FELLOWSHIP EXAMINATION.—The following gentlemen having passed the necessary examination have been admitted Fellows of the College:—Mr. R. C. B. Maunsell, M.B., B.Ch., B.A.O. Dub., and Mr. H. J. Satchwell, L.R.C.P. and L.R.C.S. Irel.

UNIVERSITY COLLEGE, LONDON.—The following is a list of the prizes awarded in the Faculty of Medicine for the winter session, 1899-1900:—Entrance scholarships: Bucknill Scholarship, £120, G. Hall; Int. Med. Course, £57 15*s.* each, J. A. Ferrière and E. Mapother*; Final M.B. Course, £79 16*s.* each, C. S. Parker* and T. L. Llewellyn. Atchison Scholarship (£55 per annum for two years): R. E. Lloyd. Bruce Medal: R. E. Lloyd. Physiology: Senior class, gold medal, A. M. H. Gray; third class, G. S. Hett; junior class, silver medal, R. A. Greeves. Certificates, 2† eq., J. A. Ferrière, G. Hall, 4,† R. S. Woods, and 5,† E. G. Perodeau; second class, A. G. C. Findlay; third class, N. S. Finzi,* P. M. Roberts, and C. S. White.* Anatomy: senior class, 1st silver medal, A. M. H. Gray, and 2nd silver medal, G. S. Hett; third class, C. H. Berry and M. W. Stewart-Smith; junior class, silver medal, R. A. Greeves, and certificates, 2,† G. Hall, 3,† and C. D. Holdsworth; second class, J. A. Ferrière, G. E. O. Williams, and R. S. Woods; third class, W. Appleyard, A. J. Blaxland, H. Farncombe, and A. G. C. Findlay. Medicine: second class, L. G. Hopkins, A. E. Jones, and R. E. Lloyd. Surgery: gold medal, R. E. Lloyd; silver medal, L. G. Hopkins; second class, A. E. Jones. Pathology, Morbid Histology, and Bacteriology: Tuke silver medal, T. L. Llewellyn; third class, C. S. Parker.* Practical Surgery: Erichsen prize, L. G. Hopkins; certificates, 2,† S. H. Bown, 3,† O. L. Addison, and 4,† T. C. Savage; second class, S. Bree, R. E. Lloyd, H. W. Reynolds, and A. N. Stevens. Clinical Medicine: senior class, Fellowes gold medal, H. W. Reynolds; Fellowes silver medal, A. E. Jones; certificate, 3,† T. C. Savage; second class, D. L. Davies, A. Emerson, L. G. Hopkins, R. E. Lloyd, and G. A. Upcot-Gill*; Junior class, Fellowes silver medal, A. F. Horn; certificates, 2,† G. E. Waugh, 3,† C. S. Parker,* and 4,† J. E. Stratton; second class, J. B. Burt, W. T. Crawford, L. A. E. de Zilwa, T. L. Llewellyn, and W. Parsons*; third class, J. C. Fleming and F. J. Lawson.* Clinical Dental Surgery: silver medal, L. G. Hopkins; certificates, 2† eq., A. E. Jones and R. E. Lloyd.

* Former pupil of University College School.
† Obtained the number of marks qualifying for a prize.

MEDICAL DEFENCE UNION, LIMITED.—The usual monthly council meeting of the union was held at the registered offices on June 21st, Dr. Walter Griffith, the President, being in the chair. An election of candidates took place, the total number of new members being 270. The general secretary read a draft letter which he had prepared in the matter of a report to the General Medical Council concerning the granting of certificates to persons other than medical practitioners by certain associations and lying-in institutions and which certificates are taken by the holders and the public as qualifying them to practise as midwives. The council adopted the letter and ordered it to be forwarded to the General Medical Council with a recommendation from the union to the following effect—viz., "That it is desirable in the interests of the public that medical practitioners either individually or collectively by association should not be allowed to issue any document which in any way can be taken by the holder or the public as granting authority to practise or which can be used to cover any practice of medicine, surgery, or midwifery, saving in the case of persons examined by duly appointed examining bodies under the supervision of the General Medical Council through their inspectors of examinations." Directions were given to the executive to call the attention of the council of the Royal British Nurses' Association to the heading in their register of nurses, Appendix B, and also to the use of the words "Diploma, London Obstetrical Society, &c.," appended to certain nurses' names. The union suggested to the Royal British Nurses' Association that the heading referred to—viz., "List of Nurse-members who have Obtained Certificates Qualifying them to Act as Midwives"—i.e. to practise midwifery—was likely to mislead the public into the belief that these

nurses were duly qualified practitioners and that an alteration was desirable in the title to the appendix. A medical practitioner who was proved to be "covering" the practice of a much-advertised self-styled "aural institute" was ordered to be reported to his licensing corporation for unethical conduct. An important report drawn up by the solicitors of the union with regard to the present law relating to the keeping for gain of persons of unsound mind by registered practitioners who possessed no licence from the Lunacy Commissioners was read and ordered to be entered upon the minutes. The report urged an amendment in the lunacy law with regard specially to the definition of a "lunatic" and steps were directed to be taken to bring this question before the Lord Chancellor. A report in reference to the admission by school boards of certificates of ill-health of children signed by persons other than registered medical practitioners was ordered to be extended and dealt with later. Owing to the numerous cases which were brought before the council at each monthly meeting it was decided to hold executive council meetings regularly every 14 days in order to shorten the sittings if possible. Action was directed to be taken in certain instances where members were threatened with writs for alleged negligence in cases attended and reports were made by the solicitor and general secretary in other cases in which actions threatened had collapsed when it became known that the union was prepared to defend. A report was made by the solicitors in a case of dispute between a medical member and a druggist in reference to the ownership of prescription books kept by the latter which contained solely the prescriptions for patients for whom the druggist had dispensed medicines at the instance and at the charge of the practitioner. A satisfactory result of the difference was reported, but it was decided to recommend medical men who handed their dispensing over to local druggists that in order to avoid any chance of dispute they should use their own books in which the prescriptions could be copied in future.

CHURCH SANITARY ASSOCIATION.—The eighth annual meeting of this association was held last week at the Church House, Westminster.—Dr. W. Collingridge, sanitary officer for the Port of London, who presided, emphasised the need for the society's existence. A question which urgently demanded attention was the vital necessity for cleanliness in the preparation, storage, and use of food. Animals should be examined before slaughter by a competent authority. Municipal slaughter-houses would do much to prevent cruelty and undoubtedly much to prevent unfit food from being consumed.—The Rev. F. Lawrence, honorary secretary, reported that sermons had been preached during the year at home and abroad and efforts made to induce legislation respecting slaughter-houses, overcrowding, and the like. He appealed for additional funds.—The report was adopted on the motion of Dr. Christopher Childs, seconded by General Lowry.—Canon Rawnsley moved that it was desirable that preachers and all persons of influence should aid in preventing diseases and fostering the health of the people.—Mr. Hugh Munby seconded, and the Rev. A. M. Mitchell supported the motion, which was carried.—On the motion of Major W. C. Poole, R.A.M.C., it was agreed that "this meeting is of opinion that hygiene should be taught in elementary schools."—Miss Ethel Springett read an interesting paper on the subject of consumption.—Resolutions of thanks to the chairman and secretary concluded the proceedings.

CHARING-CROSS HOSPITAL MEDICAL SCHOOL.—The presentation of the scholarships, medals, prizes, and certificates awarded during the summer session of 1899 and the winter session of 1899-1900 took place on June 26th. Mr. H. Beerbohm Tree occupied the chair. The Dean, Dr. Montague Murray, in his report for the current year, stated that the number of new students had been 88 as contrasted with 82 in the previous year. The only important changes in the teaching staff were the appointment of Professor Moore of the Yale University to the Lectureship on Physiology, and of Dr. Marrett Tims to the Lectureship on Biology. In the school buildings important improvements had been effected. A new staircase had been added to the Museum and the electric light had been introduced. Reference was made to the large number of old and of present students now serving in South Africa, headed by Mr. C. Gibbs, one of the assistant surgeons, who is now senior surgeon to the Langman Hospital. The Dean announced that the new academical year would open on the evening of Oct. 1st with a conversazione given by the Students' Societies, that the Huxley lecture would be delivered on Oct. 2nd by Lord Lister, President of the Royal Society, and that the Old Students' dinner would be held on the same evening at the Hotel Cecil. The renovations and additions to the hospital had been commenced, and in two years' time the Dean anticipated that a considerable portion of the new buildings would be ready for occupation. Mr. Beerbohm Tree, in presenting the prizes, referred to the sympathy and regard with which the members of his own profession were ever held by members of the medical profession.

MEDICAL GOLF TOURNAMENT, 1900.—This tournament was held under medal play regulations on May 10th by permission of the Wembley Golf Club on their links. The winner was Mr. Percy Furnivall.

FALMOUTH.—A man at Falmouth was on June 19th fined £3 and £1 15*s.* costs for entering a cab whilst suffering from scarlet fever and also for mingling with the public in the street.

VACCINATION GRANT.—Mr. Richard Macartney, L.R.C.P., L.R.C.S., L.M. Edin., of Cinderford, Gloucestershire, public vaccinator for the fourth district, Westbury-on-Severn Union, has been awarded a grant for successful vaccination.

PERMANENT APPOINTMENT OF A MEDICAL OFFICER OF HEALTH.—Mr. C. M. Fegen, M.R.C.S. Eng., L.R.C.P. Edin., D.P.H., has been appointed permanently medical officer of health to the Croydon Rural District Council at a salary of £600 per annum. The appointment has been confirmed by the Local Government Board.

COMPLIMENTARY BANQUET.—Mr. Daniel Dougal, M.D., F.F.P.S Glasg., of East Overton, Strathaven, was entertained on June 22nd in the Public Hall to a complimentary dinner and presented with a gold watch on his retiring from active practice and leaving the district after a life-long connexion with it. A considerable sum of money has also been subscribed and Dr. Dougal liberally assented to hand over the balance to the committee to appropriate as they deem most advantageous for the general public.

THE WOOLWICH, PLUMSTEAD, AND CHARLTON MEDICAL UNION.—At the last meeting of this union the following resolutions were passed:—"1. That medical officers of friendly societies be recommended to decline to attend juvenile members of clubs for a less sum than shall be agreed upon by members of this union. 2. That the union's resolution, 'That the same annual subscription with respect to juvenile clubs should be required as for men's clubs—viz., 4*s.* a year per member,' be taken to apply to clubs taking children over eight years of age only. 3. That under eight years of age children should be only taken at 8*s.* a year."

BRUSSELS MEDICAL GRADUATES' ASSOCIATION.—The twentieth annual general meeting of this association will take place at the Café Royal, Regent-street, W., on Tuesday, July 3rd, at 6.30 P.M. At 7.30 P.M. the members and their friends will dine together, and among the guests are expected Sir Walter Foster, M.P., Dr. G. Vivian Poore, Dr. T. Gilbart Smith, Dr. Dawson Williams, Mr. Howard Marsh, and Dr. Clement Godson. Any Brussels medical graduate desiring to be present is requested to communicate with the honorary secretary, Dr. Major Greenwood, 243, Hackney-road, N.E. Tickets for the dinner are 7*s.* 6*d.* each, exclusive of wine.

DEATHS FROM PTOMAINE POISONING.—An inquest was held at Carmarthen on June 15th upon the wife of the head constable of that town who had been taken ill after eating some shrimps on May 26th and had died on June 5th. Medical evidence showed that death had resulted from ptomaine poisoning and a verdict to that effect was returned.—A man, his wife, and seven children ate roast pork for dinner at Plymouth on June 10th and within a few hours all, with the exception of two boys, were seized with vomiting. One of the children, a boy, aged five years, died on the following day. At the inquest held on June 13th the medical evidence showed that death was due to ptomaine poisoning and a verdict was given by the jury to that effect. This latter case is referred to in another column.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Hours of Labour in Shops.

LORD AVEBURY having failed to induce the Government to take steps this session for the appointment of a Parliamentary inquiry into the hours of labour in shops has announced that he will himself move for the appointment of such an inquiry at the commencement of next session.

Registered Companies and Medical Practice.

The Bill of the Government to amend the Companies Acts has been read a second time in the House of Commons and referred to the Grand Committee on Trade. The third clause of the Bill says that it shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable on summary conviction to a fine not exceeding £5 for every day during which the contravention happens. Both Mr. RITCHIE (the Minister in charge of the Bill) and Mr. BALFOUR assured the House that the Government are anxious to see the measure passed into law during the present Parliament.

Midwives Bill.

The Midwives Bill may now be regarded as dead so far as the present session of Parliament is concerned. The Government allowed two Wednesdays for the consideration of private Members' Bills, and on the second of these Wednesdays (June 27th) the Bill was reached but no progress was made with it.

HOUSE OF LORDS.

TUESDAY, JUNE 26th.

The St. Pancras Lunacy Scandal.

Lord RUSSELL OF KILLOWEN raised this question in debate and asked the Government whether they intended to take any proceedings. His lordship gave an account of the system which has recently been exposed. Under this system, he said, there was a temptation to the relieving officer to take up an insane person, to take such a person before a particular medical man to the detriment of others as well qualified but more scrupulous, and to take patients, not to public institutions where they could be kept at a cost of something like 19s. a week, but to private asylums where the cost was two guineas or more. There was reason, it seemed, to believe that the system, whilst not universal, was not confined to St. Pancras. He had been waited upon by a member of the vestry of St. Matthew's, Bethnal-green, where they found that this dishonest state of relations existed. They had drawn the attention of the Local Government Board and the Lunacy Commissioners to it. The latter said they had no authority to deal with the matter, and the Local Government Board only held an inquiry after considerable delay and continued pressure.—The LORD CHANCELLOR, after commenting on the seriousness of the subject, said that the attention of the Commissioners in Lunacy had been called to the Bethnal Green case as long ago as last November and they invited the Public Prosecutor to consider whether it might not be made the subject for a prosecution of the persons concerned. The Public Prosecutor, after taking the opinion of counsel, came to the conclusion that the Act of 1889, Lord Randolph Churchill's Act, would not reach these persons. His own attention had been drawn to the case by the Lunacy Commissioners, who forwarded to him a draft clause for insertion in the Bill amending the lunacy laws. This Bill had passed the House of Lords and was now before the other House. He believed it was urgently demanded, not only for the particular matter now under review, but on other and general grounds, though he was afraid, having regard to the period of the session which had been reached, that the measure was in some peril of not being passed this session.—The Earl of KIMBERLEY asked what action, if any, had been taken by the Local Government Board.—The LORD CHANCELLOR said that he had received a communication from the Local Government Board on the subject. In the course of this communication the Local Government Board stated that the charges in the Bethnal Green case appeared to be well founded, and as it was alleged that similar practices prevailed in another Poor-law union in the metropolis they proposed to address a circular letter to boards of guardians on the subject.

HOUSE OF COMMONS.

THURSDAY, JUNE 21ST.

Medical Officers in Volunteer Corps.

Mr. BILLSON asked the Under Secretary of State for War if the army order relating to the payment of volunteers in camp would limit the payment to medical officers to one such officer for each corps, so that when a corps was entitled to two or more medical officers all but one would have to pay their own expenses; and, if so, why medical officers should be placed in such a position.—Mr. WYNDHAM replied: The order allows pay for one medical officer in each unit, one additional for each brigade, and three for each bearer company. This is considered sufficient.

The Mortality Averages for Liverpool.

Sir JOHN WILLOX asked the Secretary to the Treasury whether his attention had been drawn to the last report of the medical officer of health of the city of Liverpool, in which allegations were made of the inaccuracy and unreliability of the census returns of the last census and the consequent errors in the calculation of the mortality averages for the decennial period; and whether measures would be adopted to ensure greater correctness in taking the next census by the employment of more competent enumerators or otherwise.—Mr. CHAPLIN, who replied to the question, said: The question of my hon. friend appears to be founded on a misapprehension. No allegations are made in the report referred to of the inaccuracy and unreliability of the census returns. The medical officer appeared to have been referring to the estimates of population in the years between 1881 and 1891. These estimates were based on the increase in population in the 10 years between 1871 and 1881, and the result of the last census showed that in the case of Liverpool this rate of increase had not been maintained. There appears, however, to be no reason to suppose that the census returns themselves were inaccurate.

Medical Examination under the Workmen's Compensation Act.

Mr. WOODS asked the Home Secretary if, under Clause 11 of the First Schedule of the Workmen's Compensation Act, 1897, a workman was entitled to submit himself for examination by the qualified medical practitioner appointed for the district in which he resided by the Secretary of State, when the medical practitioner appointed by his employer had given a certificate upon his condition with which he was not satisfied, although the case had not been before a committee, arbitrator, or judge, in consequence of the employer and the workman having previously agreed to pay and receive a fixed weekly sum as compensation.—Sir MATTHEW WHITE RIDLEY replied: The provisions of Paragraph 11 of the first schedule of the Workmen's Compensation Act apply to any workman "receiving weekly payments under the Act." Whether any particular case of agreement is "under the Act" is a question which can only be decided authoritatively on the facts of the case by a court of law and I am unable to express an opinion on it in general terms.

Soldiers Invalided from South Africa.

Sir EDWARD GOURLEY and other Members called the attention of the Under Secretary of State for War to the case of Private Mitchell of the Wiltshire Regiment, who was shot in both ankles at the battle of Modder river and invalided home.—Mr. WYNDHAM replied: There are over 7000 beds reserved in the various military hospitals for private soldiers invalided from South Africa. On reaching convalescence the soldier is transferred to a convalescent home. We have ample accommodation for the first stage of recovery in hospitals and for the second in homes. But many soldiers prefer to proceed on sick furlough to their friends. This is allowed when their health justifies it. They are in that case provided with sufficient funds and with a printed statement for their guidance which contains this paragraph: "Soldiers on furlough who require medical aid shall apply for it to the nearest military station. When this is impracticable they may apply to a civil practitioner, to whom they will show this furlough paper, and who will be allowed to charge for attendance at the rate laid down on Army Form O, 1667." Arrangements had been made to send Private Mitchell to a convalescent home, but at his own request he was allowed to go on furlough to Croydon. On leaving hospital he received £7 17*s.* 6*d.* pay. Private Mitchell states that the people with whom he had intended to stay had left Croydon. He accordingly proceeded to London and feeling ill went to the Morley Hotel, 112, Lambeth-road. His health did not improve and when he had spent two days and two nights in bed the manager sent for a doctor who ordered his removal to the infirmary. A gentleman at the hotel applied to the commanding officer, St. George's Barracks, for his removal to a military hospital. The reply did not arrive before his removal. He was accordingly visited in the infirmary and removed in a military ambulance to the station hospital in Rochester-row. I beg to thank the hon. Members who by raising this question have given me an opportunity of stating the facts at a length which will not, I hope, be considered excessive in view of its importance. There has been much comment on this case and I shall be obliged if the press will give equal publicity to the fact that civilians who find a soldier left stranded on their hands should apply to the nearest military authority and not despatch him incontinently to a pauper institution.

FRIDAY, JUNE 22ND.

The Extermination of Rabies.

During a debate in committee of supply on swine fever and the outbreak of foot and mouth disease in Norfolk Mr. WALTER LONG, President of the Board of Agriculture, said he would like to take the opportunity of acknowledging the great debt of gratitude he owed to the medical and scientific men of this country for the uniform support they had given him from the commencement of his labours in connexion with rabies and also to the members on both sides of the House for the support they had given him in spite of the unpopularity and difficulties it had brought upon them in their constituencies. He was glad that their labours had been so successful, for he believed that rabies had been practically exterminated, and, with a loyal obedience to the regulations the Department had thought it necessary to impose, he believed there was no reason why they should not hope to protect the country against any fresh outbreak of this most terrible disease.

The Sale of Food and Drugs Act.

Mr. WALTER LONG, questioned on the administration of the Sale of Food and Drugs Act of last year, said that he adhered to the view he had before expressed, that the main object of the Act was to ensure local action against adulteration, and the function of the Board of Agriculture was to exhaust every effort in urging, and, as far as they could, compelling, discharge of this duty before taking action themselves. Nothing could be more disastrous than for the central authority to be ready to do the work which rightly fell to the local authority. To do that would inevitably lead to dilatory and neglectful administration. So far as he was aware the operation of the Act of last year had been most satisfactory. The Treasury had given assistance and local authorities had been made fully acquainted with the requirements of the new Act, and he had every reason to believe that the exercise of its power by the department had led to vigorous administration by local authorities. The department would leave no stone unturned to make the Food and Drugs Act a success and to put an end to the adulteration of food.

The St. Pancras Lunacy Scandal.

In Committee of Supply, when the vote for the salaries and expenses of the Commissioners in Lunacy in England was taken, Mr. BURNS called the attention of the Attorney-General to what he described as a gross scandal in one of the branches of the Lunacy Commissioners' work. Some weeks ago it was discovered that five relieving officers employed by the St. Pancras Board of Guardians had been trafficking

with the owners of private asylums in London, so that lunatics who ought properly to have gone to the asylums controlled by the London County Council or some other public authority and there been maintained at a cost of 11s. per week, had been diverted to private asylums where the weekly maintenance charged ranged from 35s. to 40s. The five officers admitted that they had received presents and sums of money from the private asylum owners. The officials were censured by the guardians, but he was of opinion that they ought to be dismissed. There was a feeling that this sort of thing was somewhat general and he hoped the Attorney-General would have a special inquiry made.—The ATTORNEY-GENERAL (Sir Robert Finlay) said that if the facts had been correctly reported to the hon. Member they disclosed an offence of a very serious kind committed both by the relieving officers and by those who were alleged to have bribed them. He hoped, however, the hon. Member was mistaken in supposing that the practice was at all common, and he assured him that the Lunacy Commissioners would investigate with the utmost vigour the management of any establishment where it was shown the practices complained of prevailed.—Sir WALTER FOSTER, after speaking of the statement of the Attorney-General as satisfactory, said that the Member for Battersea (Mr. Burns) had rendered a public service in calling attention to the management of private lunatic asylums.

TUESDAY, JUNE 26TH.

Sunstroke at Aldershot.

Dr. FARQUHARSON asked the Under Secretary of State for War if he could state how many cases of sunstroke in connexion with the Aldershot review had been treated in hospital, what was the average duration of their stay, and whether any of the cases were reported as severe or dangerous; and whether the principal medical officer at Aldershot was consulted as to the propriety or otherwise of holding the field day on June 11th.—Mr. WYNDHAM: The total number of cases was 62; the duration of stay in hospital of those discharged was 10 days; 14 are still in hospital; 29 of the cases were considered severe. The general officer commanding did not consult the principal medical officer, nor was there any ground for doing so, since exceptional heat was not anticipated.

Inoculation for Enteric Fever.

Several questions were addressed to the Under Secretary of State for War with reference to the results of inoculation against enteric fever performed on soldiers going to South Africa. Mr. WYNDHAM replied that medical records showing these results were being compiled in South Africa but that the statistics at present available were not sufficient to enable him to give a conclusive reply. He doubted whether it would be possible to report on the subject before the end of the war.

MIDWIVES BILL.

DEBATE IN THE HOUSE OF COMMONS.

On Wednesday, June 27th, in the House of Commons, the order for the consideration of the Midwives Bill as amended in the Grand Committee on Law was reached at a quarter to five o'clock, that is to say, three-quarters of an hour before the time when the discussion of contested business must, by the rules of the House, cease.

Mr GRIFFITH-BOSCAWEN moved that the Bill be considered upon this day three months—the formula for the rejection of a measure. The hon. Member said that he knew it was rather a strong order when a Bill had been read a second time by the House and considered and amended by a Grand Committee, to move that it be not considered, but in this case there were special reasons for the course he had adopted. First of all there was the great importance of the Bill and the necessity for the House considering its provisions very carefully and realising their full effect. Another reason was that the Bill had never had any proper consideration from the House. It came on for second reading most unexpectedly on an occasion when, to the astonishment of everybody, the business of the Government was suddenly concluded and when there was a very small attendance of members. The fact was that there had been no real or adequate discussion of the provisions of the Bill in the House. Then it went to the Standing Committee. Now reference to a Standing Committee was an excellent plan for Government Bills in which a large number of members were interested, but it was most unsatisfactory in the case of a private member's Bill, except, perhaps, from the point of view of the particular private members interested in the measure. By means of a little careful whipping any private member's Bill in which only a few members were interested could be got through a Standing Committee. This Bill was rushed through the Standing Committee and now that it came back to the House the House should carefully consider whether or not it should be allowed to proceed. He submitted that the Bill was contrary to the whole tendency of legislation in these matters in recent years. The whole tendency of recent legislation had been to insist upon a higher medical standard, to substitute science for what he might call quackery. This Bill went in quite the opposite direction. It proposed to give a certain bogus certificate to midwives to enable them to pose before the world as properly qualified. Under the Medical Acts before a person was recognised as qualified he must prove competency in medicine, surgery, and midwifery, while this Bill proposed to legalise the practice of midwifery by a class of people who were only qualified in one of these branches. If they could be sure that every case would be one of natural labour simple knowledge of midwifery would be adequate, but as in almost every case abnormal symptoms might arise it was necessary that there should be somebody present who was qualified not only in midwifery but also in medicine and surgery. He admitted the worthiness of the motives of those who promoted the Bill, but he denied that its provisions would have the effect desired. It would, in his opinion, largely increase the mortality in connexion with childbirth because it would induce people to employ partially qualified persons to a greater extent than in the past. The Bill, being badly drafted, stood in great need of amendment. Such an amount of amendment was necessary that the work could not be satisfactorily overtaken in the time now at the disposal of the House. In the Bill as it stood there was neither proper local control nor proper means of bringing to book certificated persons who did wrong. The local committee could do nothing but examine and report to the Central Midwives Board, a body sitting in London with no knowledge of the local circumstances, and all the Board could do was to suspend the midwife who did wrong; it had no power to fine her. It might be said that in this matter he was the mouthpiece of certain members of the medical profession who objected to the Bill from motives of self-interest, but this was not the case; he was the mouthpiece of no such people. The medical profession, or at any rate the great majority of the medical profession, objected to the Bill because they considered it contrary to the public interest.

Colonel MILWARD, in seconding the motion, said he objected to the Bill because it was another symptom of the modern craze for examining and registering everybody. They had had a measure for examining and registering plumbers and one for examining and registering architects, and now they had one for examining and registering midwives. Two of the promoters of this Bill were very esteemed country gentlemen, and he supposed that some day they would have a scheme for examining and registering country gentlemen. He was an advocate for greater freedom and a return to the old times when everybody had not to be examined and registered. He was anxious as any man to see the certified midwife properly educated and restricted to her proper duties, but he considered this Bill far too drastic.

Sir JOHN BATTY TUKE then rose to deliver his first speech in the House of Commons. He was received on rising with cheers from all parts of the House. He said that his hope was that this Bill would be allowed to proceed, because he believed it to be an important measure affecting the public health. The mover of the motion used the argument that the conduct of all cases of labour should be relegated to the medical profession. That would be highly desirable, but, unluckily for his argument, midwives had existed from the beginning of the world and he was afraid they would continue to exist. One might as well attempt to suppress the condition which gave her her employment as attempt to suppress the midwife. It had been said that a large number of the medical profession objected to legislation in regard to midwives. That was true. But there was also a large section of the medical profession which approved of the registration of midwives and was anxious that their practice should be regulated. He desired to say that the General Medical Council, of which he had the honour to be a member—a body appointed by Parliament to regulate very important matters in connexion with medicine—approved generally of the Bill now before the House. As the House was aware, a series of Bills on this subject had been introduced. At the invitation of the Lord President of the Privy Council these Bills had been considered by the General Medical Council and after long and serious consideration the latter body had approved of them generally. The Bill now before the House was under consideration at the last meeting of the General Medical Council and its general principles were accepted, if not unanimously, at least by a very large majority. The Council had made suggestions from time to time the influence of which he saw in the Bill now under discussion. In his opinion the Bill contained the essentials of a good measure—registration of midwives, provision for their education, a good midwives board, and a provision by which all those practising midwifery should be under supervision. He must not be understood as approving of all that was in the Bill. He thought it might with advantage be amended very considerably, but he strongly urged the House to allow it to proceed inasmuch as it was an important measure and one which proceeded on the proper lines.

Dr. FARQUHARSON said that he quite admitted the importance of the Bill, but he was not prepared to admit that it had been sufficiently discussed. A large number of medical men opposed it and a large number supported it and with this balance of opinion he thought the House of Commons should be able after due discussion to produce a workable measure. In its present state the Bill was by no means perfect, though he admitted that upon the whole its principle was a good and sound one. He agreed with Sir John Batty Tuke that they could not end the midwife, but if they could not end the midwife they could mend her. At the present moment two-thirds of the poor women of the country in labour were attended by people of their own sex. Some of the midwives were clever, capable women; many of them were stupid, old, and unqualified. All that was wanted was to give midwives some reasonable period of study and some reasonable examination and then to hall-mark them in some reasonable way so as to show that they were qualified for their work. He had put down amendments in the hope of improving the Bill and he felt confident that when the measure came up again for discussion, perhaps in another session, they would be able to make it a really good Bill.

Mr. PARKER SMITH said that his opinion was that this matter should be looked at, not from the point of view of the interests either of medical men or of midwives, but from the point of view of the interests of the women of England and the coming generation, and he felt sure that the medical profession looked at it from this point of view. This was really not a medical man's question at all. The great majority of births were attended not by medical men but by women, and what was wanted by a Bill of this kind was to secure that these women had some kind of qualification. He felt confident that a very small amount of training would be sufficient to get rid of the worst of the dangers now incurred, because a very small amount of training and knowledge would enable these women to discriminate between the cases with which they could deal and the cases which required the skill of the qualified medical practitioner. He hoped the House would not put aside the subject, but express its sense of its urgency and importance by its vote that afternoon.

Sir WALTER FOSTER said he agreed with the last speaker that this was a matter of considerable importance, and because it was a matter of considerable importance he wanted it postponed. He thought he was to some extent responsible for some of this attempted legislation. Seven years ago he endeavoured to move the General Medical Council to take some steps to bring about the better education of women who attended the poor in childbirth and he was still in favour of that principle. For that principle he was prepared at any time to vote, but he was not prepared to vote for a Bill which would abrogate and repeal the Medical Acts of 1858 and 1886 by creating a new class of practitioner which was absolutely unnecessary in the interests of the public. What they wanted was that the public should have in time of childbirth properly educated nurses to look after them and when it was necessary to send for the local practitioner. That was the method by which they treated the paupers in the United Kingdom. The Local Government Board recognised these midwives under certain conditions. They recognised them only on condition that in every case of labour which they attended they let the parochial medical officer know that they

had gone to attend the case, in order to warn him to be in readiness to attend the pauper if any difficulty arose. In that position these women would do a vast amount of good, but put them on this register and they would compete not only with the medical man but with other women engaged in the same business. He thought that all they wanted in the interests of public health, in the interests of the great mass of the people—and it was what the great mass of the medical profession wanted—was that they should have properly qualified women to come in and act as monthly or midwifery nurses in all cases of labour that presented no difficulty and to call in assistance in all cases that did present difficulty. This Bill did not provide that and did not secure it, and because it did not provide or secure that he thought the House should hesitate before it proceeded with it and should give the matter further consideration. Another reason for not proceeding with the Bill now was that there were a large number of amendments standing on the notice paper. Manifestly it was not a Bill which had been properly prepared and properly considered. He was not aware that the Government were prepared to back the Bill in its present form. His own view was that the subject was too large to be dealt with in a private Member's Bill; it ought to be dealt with by the Government in a Bill for which the Government were responsible. He hoped that the Government in another session would take up the matter and give them a Bill they could pass into law.

Mr. HEYWOOD JOHNSTONE, the Member in charge of the Bill, said he quite agreed with Sir Walter Foster that this was a matter which ought to be dealt with by the Government. It ought to be dealt with on the responsibility of the Government of the day. He agreed also with him in hoping that it might in the future be taken up by the Government of the day. But as the Government of the day had not taken it up the promoters of this Bill had felt it their bounden duty to bring the subject before the House and to keep it before the House and before the country. This matter had been the subject of inquiry by select committees of the House in 1892 and 1893.

Half-past five o'clock having now been reached, the SPEAKER made the usual call to order and the debate was thus peremptorily brought to a close. When the debate will be resumed no one can say, for all the time of private Members has been appropriated by the Government for their own business.

PROPOSED EXEMPTION OF HOSPITALS FROM LOCAL RATES.

EVIDENCE BEFORE THE SELECT COMMITTEE.

FRIDAY, JUNE 22ND.

The Select Committee of the House of Commons appointed to inquire into the proposed exemption of hospitals from local rates held another meeting to-day for the examination of witnesses.

Mr. BURT, Chairman of the Central Hospital Board for London, who had been partly examined at the previous sitting, said that the total amount of rates levied upon the 77 scheduled medical hospitals in the metropolis was £21,301 per annum. He thought that this was a burden which institutions of the kind should not be called upon to bear. He considered that a good enough definition of hospitals which should enjoy the proposed exemption would be hospitals carried on, not for profit, but for the care of the sick poor in mind or body and maintained partly or wholly by voluntary contributions or endowments.

In reply to Sir CAMERON GULL, M.P., witness said that the only objection to exemption which had been raised in London came from Lambeth.

The Chairman of the committee (Mr. T. W. RUSSELL, M.P.) said there could be no doubt that if exemption were granted in favour of medical hospitals other institutions would come forward and claim exemption upon practically the same grounds. He had received a letter from an institution in London which gave aid to the sick poor, had no endowments, and depended entirely upon voluntary support, praying to be heard before the committee.

Mr. BURT said he quite admitted that the question presented many practical difficulties, but of course he appeared before the committee to support the claim of the medical hospitals.

Mr. MANDERS of the Irish Office was the next witness and in the course of examination stated that under a series of statutes the hospitals in Ireland were entirely exempt from local rates.

Mr. HOLLAND, Chairman of the London Hospital, Poplar Hospital, and Tilbury Hospital, gave evidence in favour of exemption from local rates. He expressed the opinion that it would be unfair to exclude from the proposed exemption hospitals which happened to have some paying beds. He admitted that if hospitals were exempted other institutions would make a claim for exemption. This was a difficulty, but it was not for him but for that committee to solve it or to suggest a solution. He admitted that it would be reasonable to say that a hospital collecting patients from all parts of England and not doing anything for the parish in which it was situated should not be exempted from the rates of that parish. Perhaps a contribution might be got from the parishes which sent patients to the hospital.

Mr. PATRICK BLAIR, W.S., one of the managers of the Royal Infirmary of Edinburgh, was the next witness. He stated that until the year 1896 the parochial authorities did not demand payment of poor rates and school-rates, or if a notice of assessment was sent in (as occurred once or twice) a simple letter from the treasurer and clerk pointing out that the institution was a charitable one effected the withdrawal of the claim. In the year named, however, intimation was made that the exemption which had hitherto been allowed must cease, in pursuance of the circular issued by the Local Government Board of Scotland on Oct. 28th, 1896. The question of the legality of these particular exemptions had been raised by the official audit, which had been instituted some little time previously and which had enabled the Board to check the procedure of the various local authorities. The matter was remitted to the Law Committee of the Royal Infirmary Board, who reported that as the law stood the institution had no defence against the claim of the parish council, and the rates amounting to £348 15s. 9d. were accordingly paid. In March, 1897, a special committee of the Board, consisting of the then Lord Provost (Sir Andrew McDonald), Professor Rankine, and himself, were appointed to approach the Local Government Board with reference to this question. That committee subsequently met representatives of the Board and discussed the question but without any satisfactory result. In December, 1897, the matter was again before the Law Committee, when they reported that it was their opinion that under the 67th Section of the Poor-law Act, 1845, it would be lawful for the parish council to contribute "annually or otherwise from the funds raised for the relief of the poor" to the funds of the Royal Infirmary the amount of the poor-rate for which the institution was assessed, or such sum as might seem to the council reasonable and expedient. A letter in accordance with this report was therefore forwarded to the parish council, who replied on March 22nd, 1898, that it had been unanimously agreed to refuse the application of the managers for a contribution towards the funds of the institution. The managers of the Royal Infirmary felt most strongly that if there was one institution which, above all others, should be exempt from the payment of poor-rates and school-rates it was that whose affairs they had the honour to control. All treatment and advice at this hospital were granted absolutely free; no letter of recommendation was asked for, the necessity and urgency of the case being the sole requisite qualification. The poor-rates, not only of the city, but of the whole of Scotland were relieved thereby, as by promptly treating free of charge wage-earners who might fall ill or sustain injuries those depending upon them were enabled to do without the parochial assistance which many of them would otherwise require.

In cross-examination Mr. BLAIR said that while the Edinburgh Royal Infirmary had been compelled since 1896 to pay school-rates and poor-rates it had been exempted from the municipal rate.

Mr. HAYES FISHER, M.P., expressed his surprise at this state of things, saying that if the infirmary were to be called upon to pay any rate at all he should have expected it to be the municipal rate.

Mr. JAMES M. DODDS of the Scottish Office laid before the committee a copy of the circular referred to by Mr. Blair which was issued by the Scottish Local Government Board on Oct. 28th, 1896. The circular stated that the exemption of hospitals was not in terms of law unless in cases of inability to pay and intimated that it was the duty of the local boards who were responsible for the recovery of the assessment to see that the owners and occupiers legally liable were duly assessed.

The committee then adjourned.

TUESDAY, JUNE 26TH.

The committee met again to-day, with Mr. T. W. RUSSELL in the chair, and examined five more witnesses.

Sir EDWARD HAMILTON, one of the Secretaries to the Treasury, said that he was strongly opposed to any further extension of the principle of exemption from rates. He thought the principle was thoroughly bad. Anything like an exemption from rates was equivalent to a contribution from rates, and instead of being made in a disguised form it should be made above-board. Instead of exempting them from rates local authorities should, if they thought fit, make a direct grant to hospitals. The policy of the last 30 years had been to include every species of property almost in the valuation list and to draw the net closer and closer. Between 1840 and 1870 there were a good many exemptions made directly by Parliament, but since the later year, with the exception of the exemption accorded to voluntary schools three or four years ago, there had been no case, he thought, of extending exemptions. The concession to the voluntary schools was a substantial one, but he thought he could draw a distinction between voluntary schools and hospitals because one could localise the benefit of the former much better than one could the latter. The children attending a school belonged to the district, whereas the patients in a hospital were usually gathered from other districts. One great objection to providing state aid by means of exemption was that it was impossible that the benefit received should be coterminous with the area taxed. Take such a place as Ventnor, where there was a large hospital for consumptive patients. He understood that it was a large establishment and to omit it from the valuation list would mean a very great loss to the ratepayers of the locality who he imagined, rarely benefited directly from the hospital. He fancied there would be great difficulty in defining the hospital which properly was entitled to relief.

The CHAIRMAN said there was another difficulty which pressed upon his mind. Hospitals were very valuable and did an enormous amount of good work for the poor, but there were other institutions which did precisely the same class of work—orphanages and places of that sort—relieving the poor and doing it from sheer philanthropy and love of human kind. Did the witness think it would be possible to exempt from rates hospitals and not exempt institutions of that kind?

Sir EDWARD HAMILTON said he did not see any standing ground. That was his point; he said that the principle of exemption was bad and that it was impossible almost to draw a line of exemption. He had consulted the Chairman of the Royal Commission on Local Taxation and his lordship (Lord Balfour of Burleigh) had told him he fully contemplated that there would be practical unanimity against the principle of exemption from rating being carried further. The question of hospitals had not been considered by itself by the Royal Commission. He was interested in the Royal College of Music in South Kensington. About five years ago the question was raised whether that institution came within the four corners of the Act of 1843. The question came before the courts and the judge gave his decision in favour of the Royal College, which in consequence was relieved of rates to the extent of £500 or £600 per annum. He did not suppose that the ratepayers of South Kensington were aware that they contributed this amount to the Royal College of Music. He was not opposed by any means to the idea of hospitals receiving aid from the rates, but he thought that the aid should be given in the form of a contribution. He thought that in all cases where the benefit could be fairly well localised the local authority might make a contribution to a hospital, but of course it would be a strong thing for Parliament to say that the contribution should be compulsory.

Mr. RALPH BROCKLEBANK, representing 14 of the hospitals of Liverpool, gave evidence in favour of exemption. The institutions he represented relieved the rates to a very large extent and besides they carried on valuable educational work which, he thought, should be acknowledged. He admitted that it might be difficult to resist other claims for exemption, but he considered the hospitals had a special case, seeing that the patients they treated would have to be otherwise provided for. To relieve the 14 hospitals he represented would mean an addition of one-thirtieth of a penny in the £1 to the rates in Liverpool. When the Liverpool hospitals did not pay rates the ratepayers made no complaint, and he believed if it were legal the Corporation of Liverpool would be willing to forego the rates or, failing that, to make a direct contribution to the hospitals. As for the hospitals, he did not suppose they cared whether the aid came in the form of exemption from rates or of direct contribution.

Mr. WAINWRIGHT, treasurer of St. Thomas's Hospital, who was next

examined, said that last year that institution paid £2566 in rates. If the hospital were relieved of this charge its managers would be able to open two wards with 30 beds each and treat between 360 and 400 in-patients. Owing to want of funds they were obliged to refuse many applications.

Dr. J. M. RITCHIE said he was the president of the Poor-law Unions' Association of England and Wales, the past president to the Homes for the Feeble-Minded at Birmingham, the chairman of the Chorlton and Manchester Joint Asylums Committee, and a member of the London and also the Manchester Association for Improving the Condition of the Feeble-minded. He believed that the association of which he had the honour to be president was in favour of everything being done to promote the welfare of the feeble-minded who, up to the present time, had been a very neglected class. The only question was this, Could exemption be made in favour of the buildings belonging to this class without an injustice being inflicted in some cases? Take, for instance, a case with which he was well acquainted. An institution for epileptics and feeble-minded was going to be established in another county to that with which he was connected, from which the patients would be drawn. Over 400 acres of land would be occupied, having taken over those buildings and the grounds associated with them. Upon that land between 300 and 400 patients would be placed. Was it right that the authorities in that county should lose the whole of the rates from that institution and have to bear the whole of the expense of maintaining the roads along which all the stores, such as coals, &c., would have to be carted? If they made an exemption in favour of the feeble-minded, where were they going to draw the line? Epileptic colonies and the epileptics, who were certainly as deserving a class as the feeble-minded, would demand, and rightly demand, exemption, and personally he did not see how they were to grant the one and refuse the other. If exemption was given to these institutions it should be on a plan similar to the Agricultural Rating Act, by which the loss to the unions was made good from the Imperial Exchequer. As he said before, the unions had every sympathy with the promotion of establishments for the welfare of the feeble-minded, but they were certainly of opinion that this matter should be dealt with as a whole, not by dealing with it piecemeal, as in this instance, creating a precedent which would no doubt be made a case for exemption of a large number of other institutions which appeared to them equally deserving of exemption.

The Rev. A. W. JEPHSON, the last witness, said he represented the School Board of London who paid £120,000 in rates per annum. The view of the Board was that all exemptions were unfair to the ratepayers who were not exempted. The Board were of opinion that there should be no exemptions and that if possible Parliament should undo the injustice which had already been done. It was an entire misapprehension to say that the Board sent its children to the hospitals in London for the examination of their eyes. They had recommended the parents to have the eyes of their children examined and provided them with a list of the hospitals, but it was a question for the parents where the children should be examined. He might add that the Board no longer gave a list of the hospitals.

The committee then adjourned.

BOOKS, ETC., RECEIVED.

ALT, JOHANNES, Frankfurt-am-Main.
Die Mimik des Menschen. Von Henry Hughes. 1900.

BALE, J., SONS, AND DANIELSSON, Great Titchfield-street, Oxford-street, London.
More Loose Links in the Darwinian Armour. By P. Y. Alexander, M.A., LL.D., &c. 1900. Price 2s. net.
A Handbook of the Gnats or Mosquitoes, giving the Anatomy and Life History of the Culicidæ. By Major G. M. Giles, I.M.S., M.B. Lond., F.R.C.S. 1900. Price 15s. net.
The Early Treatment of Appendicitis. By Donald W. C. Hood, M.D., F.R.C.P. Lond. 1900. Price 2s. 6d. net.

BAILLIÈRE, J. B. ET FILS, Paris.
Les Actualités Médicales, Les Albuminuries Curables. Par J. Teissier. 1900.

BAILLIÈRE, TINDALL, AND COX, King William-street, Strand, London.
The Philosophy of Voice. By Charles Lunn. Ninth (standard) edition. 1900. 5s. net.
On Diabetes Mellitus and Glycosuria. By Emil Kleen, Ph.D., M.D. 1900. Price 10s. 6d. net.

BELL, GEORGE AND SONS, London.
My Diocese during the War. By the Bishop of Natal. Illustrated. 1900. Price 6s.

BLACKWOOD, W., AND SONS, London.
Journal of the Scottish Meteorological Society, with Tables for 1897 and 1898. Third Series, Nos. 15 and 16. Price 1os. (gratis to members).
Recollections of My Life. By Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I., M.D., &c. 1900. Price 21s.

BUTTERWORTH AND CO., Bell-yard, London, W.C.
A Practical Guide for Sanitary Inspectors. By F. C. Stockman. With an Introduction by H. Kenwood, M.B., L.R.C.P., D.P.H. 1900. Price 5s. net.

CARRÉ, GEORGES, ET C. NAUD, Paris.
La Goutte et le Rhumatisme. Par A. Delpeuch. 1900.

CASSELL AND COMPANY, London.
Diseases of the Tongue. By H. T. Butlin, F.R.C.S., and W. G. Spencer, M.S., M.B. Lond. Illustrated. 1900. New edition, price 21s.

CHURCHILL, J. & A., Great Marlborough-street, London.
Surgery: Its Theory and Practice. By W. J. Walsham, F.R.C.S. Eng. Illustrated. Seventh edition. 1900. Price 15s.

CLAY, C. J., AND SONS, Ave Maria-lane, London.
Histology of the Blood, Normal and Pathological. By P. Ehrlich and A. Lazarus. Edited and translated by W. Myers, M.A., M.B., B.Sc., with a Preface. By G. Sims Woodhead, M.D. 1900. Price 5s. net.

CLIVE, W. B., London.
The Organised Science Series. First Stage Hygiene. By R. A. Lyster, B.Sc. Lond. 1900. Price 2s.

CONSTABLE, A., AND CO., Whitehall-gardens, Westminster.
The Ascent of Mount St. Elias. By H.R.H. Prince Luigi Amedeo. 1900. 31s. 6d. net.

DEACON, C. W. & CO., Duke-street, Adelphi, London.
Before Good Night (being a Little Story told to a Little Child) and from Door to Door (a sequel to the above). By G. H. R. Dabbs, M.D. 1900. Price 2s. 6d.

F. A. DAVIS COMPANY, Philadelphia.
Annual and Analytical Cyclopædia of Practical Medicine. By C. E. de M. Sajous, M.D., and others. Illustrated and Maps. Vol. V. 1900.

FINCH, B., AND CO., 82, Belvedere-road, Lambeth, London.
Finch's Scientific and Novel Sanitary Appliances for Hospitals and Asylums.

FISCHER, G., Jena.
Die Specielle Chirurgie in 60 Vorlesungen. Von Dr. E. Leser. Vierte Auflage. 1900.

GREEN, W., AND SONS, Edinburgh.
Encyclopædia Medica. Editor, C. Watson, M.B., M.R.C.P.E. Vol. IV. Foot to Hernia. 1900.

INGRAM, ROBT., Pleydell-street, Fleet-street, London.
Sewage and the Bacterial Purification of Sewage. By S. Rideal, D.Sc. Lond. 1900.

KEGAN PAUL, TRENCH, TRÜBNER AND CO., Paternoster House, Charing Cross-road, London.
B. Bradshaw's Dictionary of Bathing Places and Climatic Health Resorts, with a Map. 1900. Price 2s. 6d.

KIMPTON, H., High Holborn, London.
Progressive Medicine. Vol. I. March, 1900. Edited by H. A. Hare, M.D., assisted by C. A. Holder, M.D. 1900. Price 12s. 6d. net.

LEHMANN, J. F., München.
Lehmann's Medicinische Handatlanten. Band 7: Ophthalmoscopie. Von Prof. Dr. O. Haab. 1900.
Theorie und Praxis der Schattenprobe. Von Dr. O. Neustatter. 1900.
Die Begutachtung der Erwerbsfähigkeit nach Unfallverletzungen des Sehorgans. Von Dr. E. Ammann. 1900.
Die Rolle der Schilddrüse bei Stillstand und Hemmung des Wachstums und der Entwicklung und der chronische gutartige Hypothyreoidismus. Von Dr. E. Hertoghe und Dr. J. H. Spiegelberg. 1900.
Die Typischen Operationen und ihre Übung an der Leiche. Von Dr. Emil Rotter. 6. Auflage. 1900.

LITTLE, BROWN AND CO., Boston, U.S.A.
The Mechanism of Dislocations and Fracture of the Hip—Lithotapaxy. By Henry J. Bigelow, A.M., M.D. 1900.
Surgical Anæsthesia. Addresses and other Papers. By Henry J. Bigelow. 1900.
A Memoir of Henry J. Bigelow. 1900.
Orthopedic Surgery and other Medical Papers. By Henry J. Bigelow. 1900.

MACDOUGALL, A., Mitchell-street, Glasgow.
Lectures on Clinical Medicine delivered in the Glasgow Royal Infirmary. By John L. Steven, M.D. Illustrated. 1900. Price 6s.

MACMILLAN COMPANY, London.
The Ophthalmic Patient. By P. Fridenberg, M.D. 1900. Price 6s. 6d. net.
The Care of the Child in Health. By N. Oppenheim, M.D. 1900. Price 5s.

MALOINE, A., Paris.
La Médication Ergotée (Ergot de Seigle, Ergotine, Ergotinine). Par Samuel Bernheim. 1900.

MARCUS, LOUIS, Berlin.
Fliegenlarven als gelegentliche Parasiten des Menschen. Von Dr. E. Pelper. 1900.
Dermato-histologische Technik. Von Dr. M. Joseph und Dr. G. Loewenbach. 11. Auflage. 1900.

MIRDES, RAMÓN, Zaragoza.
Lecciones de Clínica Quirurgica. Por Dr. R. Lozano. 1900.

RENSHAW, H., 356, Strand, London.
An Introduction to Pathology and Morbid Anatomy. By T. H. Green, M.D., F.R.C.P. Ninth edition. Revised by H. M. Murray, M.D., F.R.C.P. Illustrated. 1900. Price 21s.

SCIENTIFIC PRESS, Southampton-street, Strand, London.
Burdett's Hospitals and Charities. 1900. By Sir H. Burdett. Eleventh year. Price 5s.

SCOTT, GREENWOOD, AND CO., Ludgate-hill, London.
The Risks and Dangers of Various Occupations and their Prevention. By L. A. Parry, M.D., B.S. Lond. 1900. Price 7s. 6d. net.

SIMPKIN, MARSHALL, HAMILTON AND CO., Stationers' Hall-court, London.
The Failure of Surgery in Cancer, and what has Medicine done during the Queen's Reign? By S. Kennedy, L.R.C.P., L.R.C.S. Edin. 1900. Price 1s. net. By post 1s. 3d.

SMITH, ELDER, AND CO., Waterloo-place, London.
Origin and Character of the British People. By N. C. Macnamara. 1900. Price cash 4s. 6d.

SWAN SONNENSCHEIN AND CO., Paternoster-square, London.
With Methuen's Column on an Ambulance Train. By E. N. Bennett. 1900. Price 2s. 6d.

UNIVERSITY PRESS OF LIVERPOOL.
The Thompson-Yates Laboratories Reports. Edited by R. Boyce, and C. S. Sherrington. Illustrated. Vols. I. and II., reprints and reports 1898-1899.

WILSON, EFFINGHAM, Royal Exchange, London.
Food and Drugs: A Manual for Traders and Others. By Chas. J. Higginson, Barrister-at-Law. 1900. Price 2s. 6d. net.

Conty's Practical Guides to the Paris Exhibition, 1900 (Conty's Guides Office, 12, Rue Auber, Paris), price 1s. net.—Magazines, &c., for July: Strand Magazine, Boy's Own Paper, Girl's Own Paper, Leisure Hour, Sunday at Home, Ludgate Magazine, Westminster Review, Contemporary Review, Friendly Greetings, Myra's Journal, Pall Mall Magazine, Windsor Magazine, English Illustrated Magazine, Knowledge, Humanitarian, Wide World Magazine, New Century Review, North American Review, Cornhill Magazine, Munsey's Magazine, and Sandow's Magazine.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others forwarding information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ARMISTEAD, H., M.B., C.M. Edin., has been appointed Medical Officer for the Oswaldtwistle Sanitary District.

ASTIN, W., M.B., C.M. Aberd., has been appointed Medical Officer for the Loughton Sanitary District of the Epping Union, vice F. A. Owgan, resigned.

BARRON, H. T., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Registrar to the Westminster Hospital.

BENNETT, J. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the No. 4 Sanitary District by the Maidstone Board of Guardians, vice A. S. Wood.

BENSON, CHRISTOPHER RICHMOND, M.R.C.S., L.S.A., has been appointed Medical Officer for the Bratton Clovelly District by the Okehampton (Devon) Board of Guardians.

BRAUND, JAMES MONTAGUE, M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health by the Stratton (Cornwall) Rural District Council.

BROWNLEE, J., M.D. Glasg., D.P.H. Camb., has been appointed Physician Superintendent at the Belvidere Hospital by the Glasgow Corporation.

CHESTNUTT, J., L.R.C.P., L.R.C.S., Edin., has been appointed Certifying Surgeon under the Factory Acts for the Howden District.

CLARK, J., M.D. Aberd., F.R.C.S., Edin., has been appointed Certifying Surgeon under the Factory Acts for the Osmotherley District.

CRUICKSHANK, R. W., M.B., C.M. Aberd., has been appointed Certifying Surgeon under the Factory Acts for the Civil Parishes of Cruden and Slains in the county of Aberdeen.

DAVIS, HENRY, J., M.A., M.B. Cantab., M.R.C.P. Lond., has been appointed Assistant Physician to the West London Hospital, Hammersmith-road.

DEY, A., M.B., C.M. Aberd., has been appointed Medical Officer of Health for the Glendale Rural Sanitary District, vice R. Walker, resigned.

FAIRBAIRN, J. S., M.B., B.Ch. Oxon., F.R.C.S. Eng., has been appointed Pathologist to the Chelsea Hospital for Women, Fulham-road London, S.W.

FLANEGAN, H. J., L.R.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Third Sanitary District of the Evesham Union.

FOSTER, PERCY, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed House Physician to the Sussex County Hospital, Brighton.

FRYER, W. F., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the No. 6 Sanitary District of the Woodbridge Union, vice W. Adams, deceased.

HOLLINSHEAD, F., M.D. St. And., M.R.C.S., has been appointed Visiting Medical Officer at the Infirmary of the King's Norton Union.

HORA, J., M.B., B.S. Lond., L.R.C.P., M.R.C.S., has been appointed Resident Medical Officer at the Infirmary of the King's Norton Union.

KEATING, JAMES, L.R.C.P., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Ballygarvan Dispensary District, County Cork.

KELLY, T. J., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Acts for the Enniscorthy Nos. 1 and 2 Dispensary Districts.

LONGFORD, J. M., L.R.C.P., L.R.C.S. Irel., has been appointed Assistant Medical Officer for the Cottage Homes, Aston Union, vice A. Ingram.

MACDONALD, C. R., M.D. Aberd., D.P.H. Camb., has been appointed Medical Officer of the Burgh, Troon.

MCGAURAN, A., L.R.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Newtowngore, County Leitrim, Dispensary District.

MACLENNAN, ALEXANDER, M.B., C.M., L.M. Rotunda, has been appointed Extra Dispensary Surgeon to the Western Infirmary, Glasgow.

MANNIX, J. F., L.R.C.P., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Acts for the Caherciveen District, county Kerry.

MANSON, R. H., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Northern Sanitary District of the Darlington Union.

MARTIN, FRED. W., M.R.C.S., L.R.C.P. Ed., has been re-appointed Medical Officer of Health to the Borough of Brighouse.

MARTIN, J. M., M.B., B.C. Cantab., D.P.H., has been appointed Medical Officer of Health for the Stroud Rural Sanitary District, vice T. Partridge, resigned.

MITCHELL, ARTHUR M., M.A., M.D., B.C. Camtab., D.P.H. Camb., has been appointed Medical Officer of Health for the Borough of Guildford.

MORGAN, D. N., L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer for the Gilfach Sanitary District.

NICHOLSON, T. D., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Shap District.

O'DRISCOLL, A. J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory Acts for the Valencia Dispensary District in Caherciveen Union, County Kerry.

RACE, J. P., L.S.A., has been appointed Assistant Medical Officer for the Gordon-road Workhouse of the Parish of St. Giles, Camberwell, vice F. Friend.

RICHARDS, JOHN, L.R.C.P., Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Conwil Sanitary District by the Carmarthen Board of Guardians.

ROBERTSON, J. A., M.D. Glasg., has been appointed Medical Officer for the Farcet Sanitary District of the Peterborough Union, vice G. S. Payne, deceased.

SIMONS, CHARLES EDWARD GLASCODINE, M.B., C.M. Aberd., D.P.H. R.C.S. Edin., has been appointed Medical Officer of Health for Merthyr Tydvil.

STEDMAN, S. B., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Swinhope Sanitary District of the Caistor Union, vice J. B. O. Richards, resigned.

SUTTER, R. R., M.D. Aberd., L.R.C.P. Lond., M.R.C.S., has been appointed First Assistant Medical Officer for the Poplar and Stepney Sick Asylum.

SWAIN, W. P., F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the Devon and Cornwall Ear and Throat Hospital.

SYMONS, WILLIAM HENRY, M.D. Brux., M.R.C.S., L.R.C.P., L.S.A., D.P.H. Oxon. and Durham, has been re-appointed Medical Officer of Health for Bath.

TETLEY, T. WALSH, M.R.C.S., L.R.C.P. Lond., has been appointed Senior House Surgeon to the Clayton Hospital, Wakefield.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOROUGH ASYLUM, Portsmouth.—Junior Assistant Medical Officer. Salary £120 per annum, rising by three equal increments to £150, with board, lodging, and washing.

BRIDGWATER INFIRMARY.—House Surgeon. Salary £80 per annum with board and residence.

BRISTOL EYE HOSPITAL.—Locum Tenens for the House Surgeon for two months. Salary 2½ guineas a week, without residence.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House Surgeon. Salary £120 per annum, with rooms and attendance (not board), or £80 per annum, with board.

CARDIFF AND COUNTY PUBLIC HEALTH LABORATORY.—Assistant to the Bacteriologist. Salary £120 a year. Applications to the Clerk of the Joint Committee, Glamorgan County Offices, Cardiff.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road.—Physician to the Out-patient Department.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Resident Medical Officer for twelve months. Salary £60 per annum. Also Registrar. Annual re-appointment, but tenable for three years. Honorarium 20 guineas per annum.

CITY OF LIVERPOOL INFECTIOUS DISEASES HOSPITALS.—Assistant Resident Medical Officer for these hospitals, unmarried. Salary £100 per annum, with board, washing, and lodging at the hospital. Applications to be addressed to the Chairman of the Port Sanitary and Hospitals Committee, under cover to the Town Clerk, Municipal Offices, Liverpool.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £100, rising to £120 per annum, with board, furnished apartments, &c.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £30, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—House Surgeon and Assistant House Surgeon for twelve months. Salary of House Surgeon £100 per annum. Assistant House Surgeon £50, with furnished apartments, board, and washing in both cases.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY, Dumfries.—House Surgeon. Salary £50 per annum, with board and washing.

HAMLET OF MILE END OLD TOWN, London.—Assistant Resident Medical Officer at the Workhouse Infirmary, Bancroft-road, Mile-end, East. Also Assistant Medical Officer to the Workhouse and School, unmarried. Salary £150 per annum, with, board, lodging, and laundry (subject to statutory deduction).—Apply to the Clerk to the Guardians Offices, Bancroft-road, Mile-end, E.

HOLLOWAY SANATORIUM HOSPITAL FOR THE INSANE, Virginia Water, Surrey.—Junior Assistant Medical Officer. Salary £100 per annum, rising £20 annually to £200, with board, lodging, washing, and attendance.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London.—Two House Surgeons to Out-patients, non-resident, for six months. Salary 25 guineas each and lunch at the hospital.

KENSINGTON INFIRMARY.—Resident Assistant, *pro tem.* Salary £3 3s. per week, with apartments, board, and washing. Apply to the Medical Superintendent at the Infirmary in the Marloes-road.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon. Salary £140, rising £10 annually to £170, with rooms in the infirmary and attendance (option of board at £40 per annum).

LIVERPOOL STANLEY HOSPITAL.—Honorary Physician.

LONDON HOSPITAL, Whitechapel, E.—Assistant Surgeon.

METROPOLITAN ASYLUMS BOARD.—Four Assistant Medical Officers—males—at the Fever and Small-pox Hospitals, unmarried. Salary £160 per annum the first year, £180 the second year, and £200 the third and subsequent years, with board, lodging, attendance, and washing (subject to statutory deduction). Applications to the Clerk to the Board.

MIDHURST UNION, Sussex.—Medical Officer and Public Vaccinator for the Tillington District. Salary £60 per annum (subject to statutory deduction). Apply to the Clerk, Midhurst, Sussex.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Junior Medical Officer for six months. Salary at the rate of £60 per annum, with board, attendance, and washing.

NORTH RIDING ASYLUM, Clifton, York.—Junior Assistant Medical Officer. Salary £125, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £140 per annum, all found except board.

OLDHAM INFIRMARY.—A Senior and a Junior House Surgeon for one year. Salary £85 and £70 per annum respectively, with board, residence, and washing.

PARISH OF BIRMINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Medical Officer for the Workhouse Infirmary, for one year. Salary £100 per annum, with furnished apartments, rations (no alcoholic liquors), coals, gas, laundry, and attendance. Applications to the Clerk to the Guardians, Parish Offices, Edmund-street, Birmingham.

PARISH OF ST. GILES, Camberwell.—Locum Tenens to act for the Medical Officer at the Constance-road Workhouse, East Dulwich, for four weeks. Salary 5 guineas per week, and the usual in-door allowance. Apply to the Clerk to the Guardians, Offices, 29, Peckham-road, S.E.

PONTEFRACT GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer, unmarried. Salary £150 per annum, with furnished rooms, fire, lights, and attendance.

POPLAR AND STEPNEY SICK ASYLUM DISTRICT.—Second Assistant Medical Officer for the Sick Asylum at Bromley, Middlesex, E. Salary £100 per annum, with rations, furnished apartments, and washing (subject to statutory deduction). Apply to the Clerk to the Managers, Bromley, Middlesex, E.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke-road, Brighton.—House Surgeon for twelve months. Salary £80, and board, lodging, and washing. No stimulants.

ROYAL HALIFAX INFIRMARY.—Senior House Surgeon, unmarried. Salary £90 per annum, with residence, board, and washing. Also Third House Surgeon, unmarried. Salary £50 per annum, with residence, board, and washing.

ROYAL INFIRMARY FOR THE SICK AND LAME POOR OF THE COUNTIES OF NEWCASTLE-UPON-TYNE, NORTHUMBERLAND, AND DURHAM.—Honorary Ophthalmic Surgeon. Applications to the Secretary, Royal Infirmary, Newcastle-upon-Tyne.

ROTHERY-HILL ASYLUM FOR THE CITY OF BIRMINGHAM, Barnt green, Worcestershire.—Senior Assistant Medical Officer.

ST. MARY'S CHILDREN'S HOSPITAL, Plaistow, E.—Assistant Resident Medical Officer for six months. Salary at the rate of £80 per annum, with board, residence, laundry, &c.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington, London.—Demonstrator of Physiology. Salary £150.

ST. MUNGO'S COLLEGE, GLASGOW, FACULTY OF MEDICINE.—Bellahouston Chair of Anatomy. Emoluments £300 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, London.—Honorary Anæsthetist.

SALOP INFIRMARY, Shrewsbury.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board and washing.

SALFORD ROYAL HOSPITAL.—Honorary Medical Officer for the Pendleton Branch Dispensary.

STAMFORD-HILL AND STOKE NEWINGTON DISPENSARY, 189, High-street, Stoke Newington.—Assistant Resident Medical Officer. Salary £100 per annum, with board.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY, Stamford.—House Surgeon for two years, unmarried. Salary £100 per annum, with board, lodging, and washing.

SURREY DISPENSARY, Southwark, S.E.—Resident Medical Officer. Salary £120 per annum, with furnished apartments, coals, gas, and attendance. Apply to the Secretary, 53, Borough High-street, Southwark.

SUSSEX COUNTY HOSPITAL, Brighton.—Assistant House Surgeon, unmarried. Salary £30 per annum, with board and residence in the hospital.

SWANSEA GENERAL AND EYE HOSPITAL.—House Physician for twelve months. Salary £50 per annum, with board, apartments, washing, and attendance.

THE CHIEF INSPECTOR OF FACTORIES gives notice of vacancies as Certifying Surgeons under the Factory Acts:—At Portsmouth in the county of Southampton; and at Ellesmere, in the county of Salop.

UNIVERSITY COLLEGE, Cardiff.—Demonstrator and Assistant Lecturer in Anatomy, and Demonstrator and Assistant Lecturer in Physiology. Salary in each case, £120.

WESTERN GENERAL DISPENSARY, Marylebone-road, London.—Honorary Physician. Also House Surgeon, resident and unmarried. Salary £75 per annum, with board and 10s. a month for washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon for one year. Salary £75 per annum, with board, residence, &c.

WEST RIDING ASYLUM, Menston, near Leeds.—Locum Tenens for two months. Salary, three guineas per week, with board and apartments.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 a year, with board, lodging, and washing. Also Assistant House Surgeon, for six months. Honorarium at the rate of £75 per annum, with board, lodging, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

BARENDT.—June 20th, at 65, Rodney-street, Liverpool, the wife of Frank Hugh Barendt, M.D. Lond., F.R.C.S. Eng., of a son.

BUCHANAN.—On June 26th, at Hammersmith-terrace, W., the wife of G. S. Buchanan, M.D., of a daughter.

CROSS.—On June 19th, at The Limes, Wallwood-park, Leytonstone, N.E., the wife of Ernest W. Cross, M.R.C.S., L.R.C.P. Lond., of a son.

FORDE.—On June 18th, at Central-hill, Upper Norwood, S.E., the wife of R. M. Forde, Colonial Surgeon, Gambia, of a son.

GONIN.—On June 19th, at Towcester, the wife of Edmund Henri Gonin, M.D., of a son.

HAMILTON.—On June 23rd, at Sandon-street, Falkner-square, Liverpool, the wife of George G. Hamilton, F.R.C.S., of a daughter.

HORNER.—On June 27th, at St. Mary's-road, Walthamstow, the wife of Charles Julian Horner, L.R.C.P. Lond., M.R.C.S., of a daughter.

LAMBE.—On June 20th, at West View, Seaford, the wife of Thomas Lambe, M.R.C.S., L.R.C.P., of a daughter.

LEWIS.—On June 21st, at Farleigh, Pontypridd, the wife of B. M. Lewis, M.R.C.S., L.R.C.P. Lond., of a daughter.

LISHMAN.—On June 21st, at Puerto Orotava, Teneriffe, the wife of Frederick Lishman, M.D., of a daughter.

MANN.—On June 10th, at Revesby, Lincolnshire, the wife of F. W. S. Mann, M.R.C.S., L.R.C.P. Lond., of a daughter.

PARKINSON.—On June 19th, at Wimpole-street, the wife of J. Porter Parkinson, M.D. Lond., of a son.

ROWE.—On June 20th, at Cecil-street, Margate, the wife of Arthur W. Rowe, M.S., M.B., of a son.

MARRIAGES.

BACON—PLATT.—On the 19th inst., by the Rev. C. P. Sergeant, at St. James's, West End, near Southampton, Robert A. E. Bacon, M.R.C.S. Eng., L.R.C.P. Lond., only son of Robert Bacon, Esq., R.N., of Sandmere, Bitterne Park, Southampton, to Elizabeth S. Platt, second daughter of Charles Platt, Esq., R.N., of Wood Leigh, West End, near Southampton.

CARTER—TOONE.—On June 21st, at Emmanuel Church, Loughborough, Arthur Burnell Carter, M.R.C.S., L.R.C.P., of Dartford, Kent, to Edith Annie, eldest daughter of the late William Henry Toone, Solicitor, of Loughborough.

COURT—PARLBY.—On June 19th, at St. Peter's, South Weald, by the Rev. R. W. Chilton, assisted by the Rev. Canon Fraser, Edward Percy Court, M.R.C.S., L.R.C.P., of Hambledon, Hants, to Lillie, eldest daughter of John P. Parlby, of Harold Wood, Essex.

DUNLOP—GRIMLEY.—On June 22nd, at St. Magnus Episcopal Church, Lerwick, Scotland, Alexander Watson Dunlop, M.A., M.D., Dunrossness, to Agnes, eldest daughter of Mr. William Grimley, Sutton-bridge, Lincolnshire.

HIBBARD—WEST.—On June 27th, at Holy Trinity Church, Cottage-grove, Bow, E., Charles E. Hibbard, L.R.C.P., L.R.C.S., of The Grove, Wandsworth, to Alice, only daughter of James West, Bow-road, E.

MAGUIRE—JEFFERYS.—On June 23rd, at St. Helen's Church, North Kensington, W., George J. Maguire, M.D., Richmond, Surrey, to Louise, younger daughter of Francis Jefferys, of Cambridge-gardens, W.

RUST—SHIERS.—On 21st inst., at St. Margaret's Church, Dunham Massey, by the Rev. Albert Rust, brother to the bridegroom, assisted by the Ven. Archdeacon Woosnam, John Rust, M.R.C.S., L.R.C.P., of 30, St. Mary's-road, Crumpsall, Manchester, third son of John Rust, Ditchingham, Norfolk, to Florence Louisa, youngest daughter of the late Richard Shiers of Bowdon, Cheshire.

VASEY—GRIFFITHS.—On June 21st, by the Rev. W. Hardy Harwood, at Union Chapel, Islington, S. Arch. Vasey, F.I.C., F.C.S., of Loughton, Essex, to Gertrude, the youngest daughter of J. J. Griffiths, Esq., J.P., of Highbury-grange, N.

WYLLYS—BALLANCE.—On June 21st, at St. George's, Hanover-square, Henry John Mackeson Wyllys, F.R.C.S.E., of Great Yarmouth, to Rosa Louisa, third daughter of the late Charles Ballance of Clapton.

DEATHS.

FARR WHITE.—On June 20th, at Leopold-road, Wimbledon, George Farr White, F.R.C.S., late Assistant Surgeon, H.M.'s 77th Regiment.

FITZ HUGH.—On June 15th, at the Imperial Hospital, Bucfontein, Civil Surgeon Richard Truman Fitz Hugh, M.B. Lond., aged 28 years.

FORRESTER.—On June 19th, at Cape Town, Surgeon Lieutenant-Colonel J. S. Forrester, Royal Horse Guards, aged 46 years.

HOPE.—On June 21st, at Church hill, Petworth, Samuel Wilson Hope, M.R.C.S., L.R.C.P., in his 56th year.

JONES.—On June 20th, at Windsor Esplanade, Cardiff, Francis William Brandram Jones, M.D. Edin., aged 39 years.

RAMSDEN.—On 24th inst., suddenly, at Sunnyside, Dobcross, Saddleworth, Walter Henry Fox Ramsden, M.R.C.S., L.R.C.P., aged 66 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A LAYMAN'S VIEWS OF INEBRIETY.

A CORRESPONDENT writes:—So great an interest has been aroused in the arguments for and against the so-called temperance question at the present time that the following translation of a quaint passage from the writings of Pufendorf can scarcely fail to be of interest. The translation was made by Mr. R. Milne, who sent it to the Society for the Study of Inebriety. That society caused it to published in their pamphlet of Proceedings. Many of the temperance journals have unwarrantably assumed that the society is necessarily an ardent patron of teetotalism. Most of the so-called temperance reformers aim not at temperance or moderation in drinking, but at total abstinence. The society mentioned, however, does not consist and is not intended to consist of teetotal members. It exists for the study of inebriety as such and not for its extinction or suppression. Thus, as a really learned body the society does not hesitate to hear and discuss all sides of a question. One may feel sure that such breadth of view in investigation can only result in the attainment of really valuable knowledge of the subject. One cannot feel much confidence in the conclusions arrived at about inebriety or excess in drinking by societies known to be prejudiced in favour of total abstinence and intolerant of the views of the millions of moderate drinkers. The passage is as follows:—

> We should ask *why* people get drunk? And *how* it is that some keep sober?"
>
> One is sober because he has not the means to get drunk.
>
> Another because greater pleasures than drunkenness are within his reach.
>
> Another simply through *fear*, whether of the law, or of his fellows.
>
> Another because drunkenness hinders his pursuits and the ends he has most at heart. Thus are great criminals sober.
>
> [This last observation is of great antiquity. Aristotle wrote: "If the knave be sober through design, and the invalid through necessity, the wise man will be so from choice and the good man from a sense of duty."]
>
> One is drunk simply because his bodily machine is so crazy and dilapidated that he can find no other way to keep his brain alive but through drunkenness.
>
> Another because of the desolation and the joylessness of his life. He drinks to forget.
>
> Another because drinking exalts certain powers of his body or mind for a time.
>
> Another because drinking feeds the vices he takes most pleasure in.
>
> Another because drinking makes him feel big and important.
>
> Another is drunk because drinking eases certain stomach distresses.
>
> Another because the *very ideals* of the sober party are hateful to him.
>
> Another simply because he has somehow got into the habit of drinking.
>
> Another to stave off exhaustion.
>
> Another because his dietary is unsuitable to him.
>
> Saint and sinner alike we all seek pleasure, and men will go wherever to their understandings the greatest promise of pleasure is held out. All these notions, both of sober and inebriate, are at root one and the same, the getting of pleasure or the avoidance of pain of every degree whatsoever, for if you can avoid pain you will be absolutely happy. And this absolute easing it is that gives the "beatific vision" to the face of the dead. There is no more tension. While we live there must be this tension, for only thus is life, work possible. And this tension means myriads of tiny worries and distresses, most of them through habit unknown even to ourselves.
>
> What, then, are the remedies?
>
> In one word, Knowledge. All else will follow. We must *take counsel with* the inebriate. And before he will allow that he must see that you love him, that you respect him, and you understand him and his bodily and mental needs. There is no reformation, no amendment, but *from within outwards*. You must cooperate with the man himself.

The translator adds: "There seems to be in this book the ancient, the eternal, confusion between what a man ought to do and what his neighbours have a right to require of him. By 'ought to do' I mean either what is due to his Maker or what is due, fitting, becoming to himself. Do you really think you have the *right* to compel your neighbour to be sober, supposing you had the power? I mean no offence in thus asking."

PULEX IRRITANS.

C. M. H. wishes to know how to get rid of a plague of fleas in an old country house where the pests have established themselves in the woodwork and cracks of the floors. In THE LANCET of April 6th, 1895, p. 882, and in our issue of May 14th, 1898, p. 1344, the subject is dealt with, but perhaps some of our readers may be able to help our correspondent further. The use of formalin, of which we have no experience in this particular application, is suggested, but if it is tried we would recommend as an additional measure that a stiff soapy lather should be worked into the cracks and crevices of the boards before or after fumigation and allowed to remain for 24 hours.

HOMES FOR INCURABLE POOR.

To the Editors of THE LANCET.

SIRS,—Could any of your readers kindly give me the addresses of homes for incurable patients, where the patients are received for very nominal amounts per annum?

I am, Sirs, yours faithfully,
Hayle, Cornwall, June 25th, 1900. H. ROBERTS.

"DEATHS UNDER CHLOROFORM."

To the Editors of THE LANCET.

SIRS,—In the issue of THE LANCET of June 23rd, 1900, p. 1846, appears a letter from Mr. C. J. Harris, in which he quotes the case I reported in your issue of June 9th, 1900, using that case to draw a comparison between the older method of giving chloroform and the latest fad of the Krohne Inhaler. But Mr. Harris does not quote correctly. He says that chloroform in my case "was administered by the towel or Simpson's method." Well, it was not so. The chloroform was given on an inhaler of the Skinner type to the patient on both occasions and on both was the same amount used. Giving chloroform as I am doing very frequently I can practically be certain that I hold the mask the same distance from the face in every case, so that the concentration of the vapour of chloroform and air is the same in each case, and according to experiments by S. J. Lister the percentage of chloroform is about 4·5 per cent., and I maintain that an ounce of chloroform used on an open inhaler during the space of 20 minutes, of which the patient gets 4·5 per cent., cannot be in any way construed as an excessive dose; my patient certainly had quite as much chloroform on the second occasion with no ill results. I cannot explain why he behaved as he did on the first occasion, but in view of the second operation I state emphatically that it was not an overdose, and I am certain that had the chloroform been given in a Krohne or any other inhaler the result would have been the same. The advocates of some particular new fad are always quoting any case under the old conditions, but one notices that no figures are given in support of the new *régime*, and when one considers the huge number of occasions on which chloroform is given under what they are pleased to term the "old" method in a year and the comparatively insignificant number of casualties resulting, one feels inclined to go on until one's own figures at any rate are equalled. I have administered chloroform up to date 576 times with no deaths and I know two of my fellow anæsthetists, one of whom has had over 3000 cases with no deaths and the other over 1500 cases with no deaths. When I see these figures equalled under any new conditions it will be then quite time enough to change from the "old" to the new.

I am, Sirs, yours faithfully,
FRANK E. MARSHALL, M.B., Ch.B. Vict., L.S.A.,
Anæsthetist to the Royal Southern Hospital, Liverpool.
Liverpool, June 22nd, 1900.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 16th, 1900, there is a very interesting paper upon anæsthetics by Dr. Dudley Buxton. But there is one sentence on which I think we need further light. Dr. Buxton writes (page 1715, col. 2):—

> "It is one great advantage of inhalers such as Junker's over the open method that you can give chloroform in great dilution but maintain the continuity of the inhalation. With skill and judgment the drop-bottle method with a Schimmelbusch's mask will give a good result, but it is inferior to a regulating inhaler."

At page 1716, col. 1, Dr. Buxton again writes: ".... I gave him oxygen with chloroform with the best result. I administered oxygen continuously and exhibited chloroform from my modified form of Junker's inhaler."

Many readers will be thankful to see this pronouncement, and especially the essential principle of "great dilution," "extreme dilution and slowly." But what instrument does Dr. Buxton mean by "the Junker inhaler"; what by "a regulating inhaler"; and what by "my modified form of Junker's inhaler"?

This is a serious question because practitioners who order "a Junker inhaler" or "a Buxton's modified Junker" will have planted upon them an obsolete and dangerous instrument which can hardly be what Dr. Buxton means. Of course, "with skill and judgment," if only there be enough of it, the drop method on the flannel mask, the towel method, an old Junker, *or any other method* may be made safe. But the drops of chloroform that come off the lip of a bottle vary in size with the shape, magnitude, and thickness of the lip. Moreover, the saturated flannel mask does not enable one to measure the volume of chloroform-air which goes into each inspiration. In fact, it is a rule-of-thumb method and the graduated drop bottle is illusory.

As to the "Junker inhaler" it has two fatal faults. The respiration orifice, when the throttle valve is fully open, is of smaller cross-section than the glottis and is inadequate to save from asphyxiation. Moreover, it cannot be seen whether this throttle valve on the collar of the

inhaler is open or shut except by the administrator on his stooping down to make a close inspection. This is a very dangerous fault and it adds the risks of asphyxiation to the chances of chloroform poisoning. The old Junker is, however, safer than the Junker modified by the rubber-inflator, which makes the mask air-tight to the face. With the old Junker the throttle valve was useless and unsafe, but the patients' lives were saved by the fact that the periphery of the face-piece, being of rigid vulcanite, never fitted the face air-tight. Large chinks remained open between the patient's face and the base of the mask, and while the administrator was worrying over the illusory throttle valve the patient was breathing comfortably through these chinks. These chinks also made it extremely difficult for the most strenuous pumper to kill his patient, inasmuch as the heavy chloroform vapour drained out through the chinks at every expiration. But when the rubber inflator was put on to the edge of the mask it fitted the face air tight and the improved Junker became a death-trap.

The presence of Krohne's two fire-engine balls so as to produce a continuous jet of chloroform air all round the respiration cycle also made the apparatus chaotic in action and practically unmanageable. The result was that practical men preferred the towel method, or any other, and they were then quite right.

Subsequently to the application of the rubber inflator Krohne knocked off altogether the collar and its valve and replaced them by a large respiration orifice many times the area of the glottis and always open—unless some sage stops it up with a towel or puts his hand over it. Krohne thus transformed the inhaler. It was now perfect except as to one point—the survival of the continuous jet. It was my good fortune to point this out in THE LANCET of Oct. 28th, 1899, pages 1205-6. Krohne at once adopted the single ball and improved valve as suggested by me. The result now is an inhaler with which any volume of chloroform-air can be injected into each inspiration, and *if worked as described by me* the whole of the chloroform used goes into the recesses of the lungs. All that is now necessary is for the administrator to learn to think of his chloroform in fractions of a minim instead of in fractions of an ounce. Krohne added the "feather indicator," which exhibits to everyone in the room the rhythm and amplitude of every phase of each respiration cycle.

What I desire to point out is that if we want the right implement we must order the "Krohne Inhaler 1900." In this we have the fundamental step made by Junker of pumping chloroform vapour into a facepiece, the continuous jet abolished, the rubber inflator to close up the chinks round the periphery of the mask, the large uncloseable respiration orifice, and the feather indicator. It is a perfect instrument. But it will not be obtained under either of the names used by Dr. Buxton.

One more point. It is useless to talk vaguely and incidentally of "large dilution" of the chloroform vapour. What is large dilution? Sound teaching should point out that the anæsthetising atmosphere must contain from 1 to 2 per cent., by volume, of chloroform vapour; that a larger percentage is dangerous and is only to be used on rare occasions. 1 to 2 per cent. means one to two cubic inches of chloroform vapour diluted up to a volume of 100 cubic inches with pure fresh atmospheric air. Such an atmosphere, continuously inspired, induces a safe, comfortable, and perfect surgical anæsthesia, in less than ten minutes, and with a total abstraction from the graduated burette of from 30 to 50 minims of chloroform. And the anæsthesia is as pleasant as the 40 winks into which a tired man drifts in an afternoon siesta. The first ten inspirations should carry into the lungs even less than 1 per cent. of chloroform vapour. First, we gently benumb the reflex irritability of the larynx and air-passages. That having been achieved we commence the work of charging up the whole mass of the circulating blood and its extra-vascular plasma. This charging up of the system requires time for the necessary diffusion and penetration. It must be so graduated that a killing surcharge is never at any moment precipitated into those few cubic inches of blood which lie between the capillaries of the pulmonary artery and the capillaries of the coronary arteries—a fraction of the circulation which I have described as "the pulmo-cardiac blood," and on which the life of the heart depends. A momentary surcharge here kills the heart.

I am, Sirs, yours faithfully,

Manchester-square, W., June 25rd, 1900. JAMES EDMUNDS.

"THE YOUNG PRACTITIONER, HIS CODE AND TARIFF."

To the Editors of THE LANCET.

SIRS,—Will someone inform me in the columns of THE LANCET where I can obtain a copy of this work? I can gain no information about it at the usual shops.

I am, Sirs, yours faithfully,

June 17th, 1900. M.R.C.S., L.R.C.P.

POINTS IN ETIQUETTE.

C. G. D. asks:—

1. What course should be adopted when a junior partner in a large general practice refuses to be governed by the ordinary rules of etiquette in his conduct to his partner and totally ignores all rules by which medical men are usually governed? 2. Also, can a junior partner in a large general practice accept an honorary appointment in a hospital (which may take him away from his work probably for some hours each day) without the consent of his partner?

1. The gist of the first question lies in the words "ordinary" and "usually." No member of the profession, we are sure, would willingly infringe the rules of medical etiquette, whether he did so to the detriment of his own partner or of any other medical man, but the rules are not as definite in many directions as they might be and presumably the junior partner differs from his senior in his interpretation of them. 2. The answer to the second question depends upon the phraseology as well as upon the meaning of the agreement between the partners. It may be good for the practice that one or the other partner should hold an appointment in a hospital, and the junior partner might be able to bring evidence that such is his view. In general answer to both questions we would say that it is perfectly clear that the matters in dispute should be settled amicably by arbitration. A medical man of senior standing whose position is recognised as a good one by both partners should be asked to decide upon the *modus vivendi*.

O. H. B.—No book contains the information in question. The position of the General Medical Council now practically is that the employment of unqualified assistants is completely forbidden. A practitioner may be accompanied to a case by a *boni-fide* pupil, while the chief difference between a pupil and an assistant lies in the fact that the former pays for information that he is gaining, whilst the latter is paid for help that he is rendering. We cannot reply more definitely than this.

B. O.—In our opinion the Oxford graduate should be considered the senior man, but we can only give an opinion. If the matter is of importance the electing body should decide which is to be considered senior.

Ethics.—We regret to be unable to help our correspondent, but have published his letter as some of our readers may be better informed than we are.

A Subscriber.—The possession of such diplomas would make their owner "doubly qualified."

ERRATA.—In the letter of Dr. Chaumier, headed "A Propos du Rapport de la Commission de THE LANCET, sur la Pulpe 'Vaccinale' Glycérinée," which appeared in our issue of June 23rd, p. 1831, the following corrections should be made: On page 1832, col. 1, line 7, Chalybaüs should read *Chalybäus*; on page 1833, col. 1, line 13, the word printed "infinie" should be *infime*; in paragraph 2, line 2 "pouvait" should be *pourrait*; paragraph 4, lines 4 and 5, "Grigorien" and "Voiton" should read *Grigoriew* and *Voiton*.—In THE LANCET of June 2nd, on page 1629, column two, paragraph two, lines 10 and 11 should read: "It had taken place since he ceased to be a member of the board—i.e., February, 1897."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 28th, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
June 22	29·83	W.	0·06	114	70	56	57	60	Cloudy
" 23	29·77	N.W.	0·18	116	70	49	52	56	Cloudy
" 24	29·84	S.W.	...	119	69	53	57	62	Cloudy
" 25	29·48	S.W.	0·12	108	68	54	54	55	Raining
" 26	29·81	N.W.	0·55	102	69	53	55	58	Cloudy
" 27	30·00	N.W.	...	110	70	50	54	59	Hazy
" 28	30·00	N.E.	...	70	61	55	56	57	Overcast

During the week marked copies of the following newspapers have been received: *Western Mail, Western Morning News, Whitehall Review (London), South Wales Daily News, Sydney Daily Telegraph, Leeds Mercury, Staffordshire Sentinel, Macclesfield Courier, Dewsbury Reporter, Manchester Guardian, Newcastle Daily Chronicle, Birkenhead News, Daily Mail (London), Gazette (Middlesbrough), Norfolk Daily Standard, Times of India, Pioneer Mail, Architect, Builder, Citizen, Bristol Mercury, Yorkshire Post, Caterer, Liverpool Daily Post, Sanitary Record, Barrow Herald, Siam Free Press, Brighton Gazette, Jersey Express, Carmarthen Reporter, The New Age, Drogheda Advertiser, Morning Post, Morning Advertiser, Warrington Guardian, Christian World, City Press, Reading Mercury, Local Government Journal, Natal Mercury, Surrey Advertiser, Swansea Journal, Manchester Evening Chronicle, Mining Journal, Local Government Chronicle, Hertfordshire Mercury, Preston Herald, Torquay Times, Topical Times, Hastings Times, Lincoln Mercury, Horse Guards Gazette, Chelsea Mail, Public Health Engineer, The Observer, Chester Guardian, Walsall Observer, Daily Express (Dublin), South London Press, Liverpool Journal of Commerce, Scotsman, &c., &c.*

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Lonpon Throat (2 P.M. and 6 P.M.).

SATURDAY (7th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

SATURDAY (30th).—PATHOLOGICAL SOCIETY OF LONDON (Pathological Laboratory, New Museums, Cambridge).—4 P.M. Papers and Demonstrations by Prof. Woodhead, Dr. Dixon, Dr. Eyre, Mr. Griffiths, Dr. Nuttall, Dr. Cobbett and others. 6.30 P.M. Dinner in Trinity Hall.

WEDNESDAY (4th).—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Dr. H. Roberts, Dr. Blacker, and Dr. Fairbairn. Paper:—Dr. A. Routh: Porro-Cæsarean Hysterectomy with Retro-peritoneal Treatment of the Stump in a Case of Fibroids obstructing Labour, with Remarks upon the Relative Advantages of the modern Porro Operation over the Sanger-Cæsarean in most other cases requiring Abdominal Section.

FRIDAY (6th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—8 P.M. Cases and Card Specimens. 8.30 P.M. Papers:—Mr. F. M. Ogilvie: On one of the Results of Concussion Injuries of the Eye ("Holes" at the Macula).—Mr. K. Scott and Mr. J. Griffith: Alveolar Carcinoma of Eyelid.—Mr. C. D. Marshall: Further Notes on a Case of Optic Nerve Tumour previously reported to the Society.—Mr. P. Flemming: Three Cases of Ophthalmitis ("pseudo-glioma") in Children, One Recovery, Two Fatal, from Meningitis. The Annual General Meeting will be held after the Ordinary Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (2nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Consultation. (Skin.)

LONDON THROAT HOSPITAL (204, Gt. Portland-street, W.).—4.30 P.M. Mr. C. Woakes: Demonstration on Selected Cases. (Post-graduate Course.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. Keetley: The Diagnosis of, and Operations for, Diseases of the Breast.

TUESDAY (3rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. F. Payne: Consultation. (Medical.)

BRUSSELS MEDICAL GRADUATES' ASSOCIATION (Café Royal, Regent-street, W.).—6.30 P.M. Twentieth Annual General Meeting. 7.30 P.M. Dinner.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, W.C.).—3.30 P.M. Mr. M. Gunn: Ocular Paralysis.

WEDNESDAY (4th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—8.30 P.M. Formal Opening of New Clinical Museum by Sir William Broadbent. 9 P.M. Clinical Lecture:—Prof. Osler: The Teaching of Practical Medicine.

EVELINA HOSPITAL (Southwark-bridge-road, S.E.).—4.30 P.M. Dr. W. S. Fenwick: On Diarrhœa in Children. (Post-graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Schorstein: The Forms of Dyspepsia in Pulmonary Tuberculosis.

MASON UNIVERSITY COLLEGE, BIRMINGHAM (Medical Lecture Theatre of the College).—4 P.M. Dr. O. J. Kauffmann: The Commoner Neuroses of Childhood, their Pathology and Treatment. (Ingleby Lecture.)

THURSDAY (5th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)

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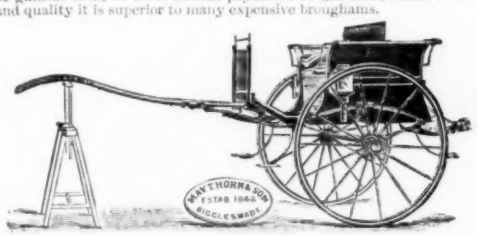

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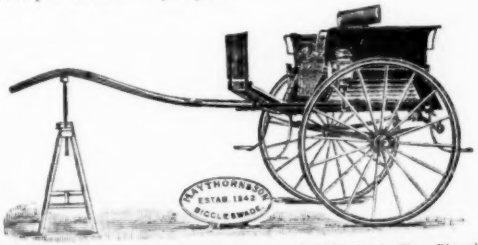

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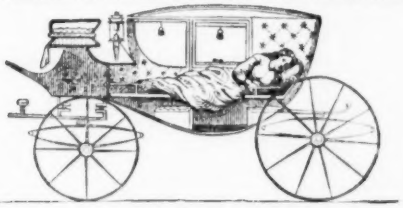

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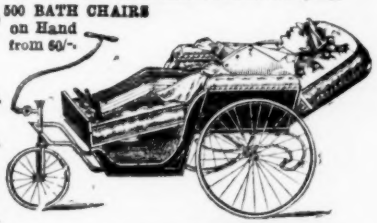

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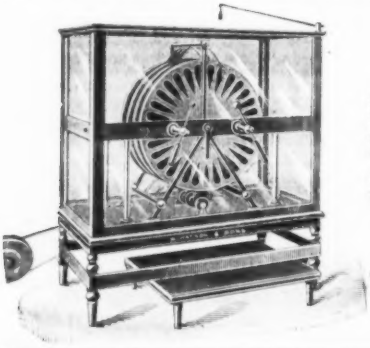

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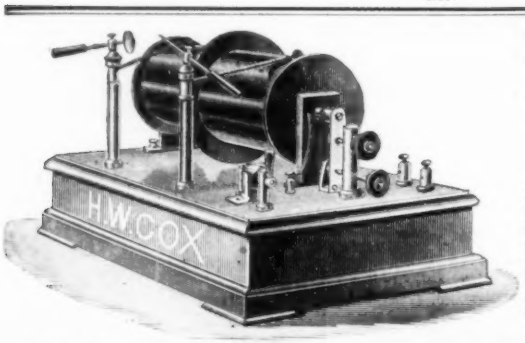

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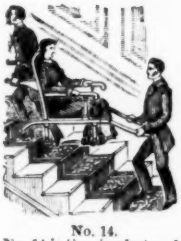

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PLASMON is an economical food within the reach of everyone. It may be used alone or with any and every form of food.

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(See opposite page).

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Packets about 1 lb. - - - **2/6**
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NATURE'S NUTRIENT.

Professor W. PRAUSNITZ, M.D., Principal of the Hygienic Institute, Graz University, and Principal of the State Department for Investigation of Food, said at the meeting of the German Scientific Association in Munich :—

"Plasmon possesses the highest assimilative value known for any albumen food."

In the MÜNCHENER MEDICINISCHE WOCHENSCHRIFT, 1899, No. 26, he states :—

"**There is no food preparation known to us equal to Plasmon,** either as regards constancy of composition, as guaranteed by its source, or in respect to the proportion, solubility, and digestibility of the nutritive constituents."

Professor F. HOFMANN, M.D., Privy Medical Councillor and President of the Hygienic Institute, Leipsic University, says :—

"The Plasmon taken fully replaced the albumen of ordinary meat diet."

"Plasmon is an albumen preserve which contains in a minimum space the maximum quantity of indispensable food."

Dr. C. VIRCHOW, of Berlin. After a systematic trial of the nutrient value of Plasmon, including 19 days' experiment upon himself, Dr. VIRCHOW expresses himself as follows :—

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Dr. W. CASPARI, Physiological Institute of the German Board of Agriculture, says :—

"The dietetic experiments show that more flesh is put on when dieted with Plasmon than with meat food." (FORSCHRITTE DER MEDICIN, XVII., No. 19.)

Dr. I. B. RAVENS, Principal Medical Officer of the State Kropp Asylums for Imbecile Children and Foundlings, says :—

"Whoever sees the children and patients fed on Plasmon at once recognises from their appearance the wonderful success of its administration."

Dr. WOLFF-IMMERMANN, Director of the Reiboldsgrün Hospital in Saxony, says :—

"Even the most fastidious patient took it for weeks and months without objection."

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An unique preparation, combining Heat-producers (fat and oils) with Flesh-formers (iron-bearing proteids).

FOR CHILDREN, begin with an egg-spoonful three times a day.

> "In children who are fed upon a deficient amount of fat the bony structures are imperfect and slow of growth. In a word, deficiency of fat in the food (of infants) is one of the chief factors in the production of rickets."—CHEADLE.

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The BRITISH MEDICAL JOURNAL says:—

> "Free from the objectionable character of cod-liver oil, and possessing considerable nutritive value."

The taste of Virol is delicious. In this respect it possesses a surpassing advantage over cod-liver oil and other preparations generally prescribed for Invalids and Children, whilst in nutritive properties Virol is equal and in most cases superior to such preparations.

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Doctors should be aware that

INVALID BOVRIL

is a special preparation, quite distinct from ordinary "Bovril" and more highly concentrated. It is

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and consequently acceptable to the most fastidious palate.

For patients who object to "Bovril" on account of its salt flavour Doctors might order "INVALID BOVRIL," which can be obtained from any Chemist.

THE LANCET, writing of two special analyses published in previous issues, the first an analysis of Special Invalid Bovril and the second one of a good home-made beef-tea, after remarking that "in considering the question of relative nutriment, regard must, of course, be paid to the amount of water employed in preparing beef-tea," says very forcibly, that "**all things being equal, the Invalid Bovril yielded, according to the analysis from THE LANCET Laboratory, a much higher proportion of nutrient substance than the ordinary beef-tea.**"

A Great Authority condemns Beef-Tea.

***DR. MILNER FOTHERGILL** says:—*

"To give beef-tea to a sick person is to give him a stone when he asks for bread."

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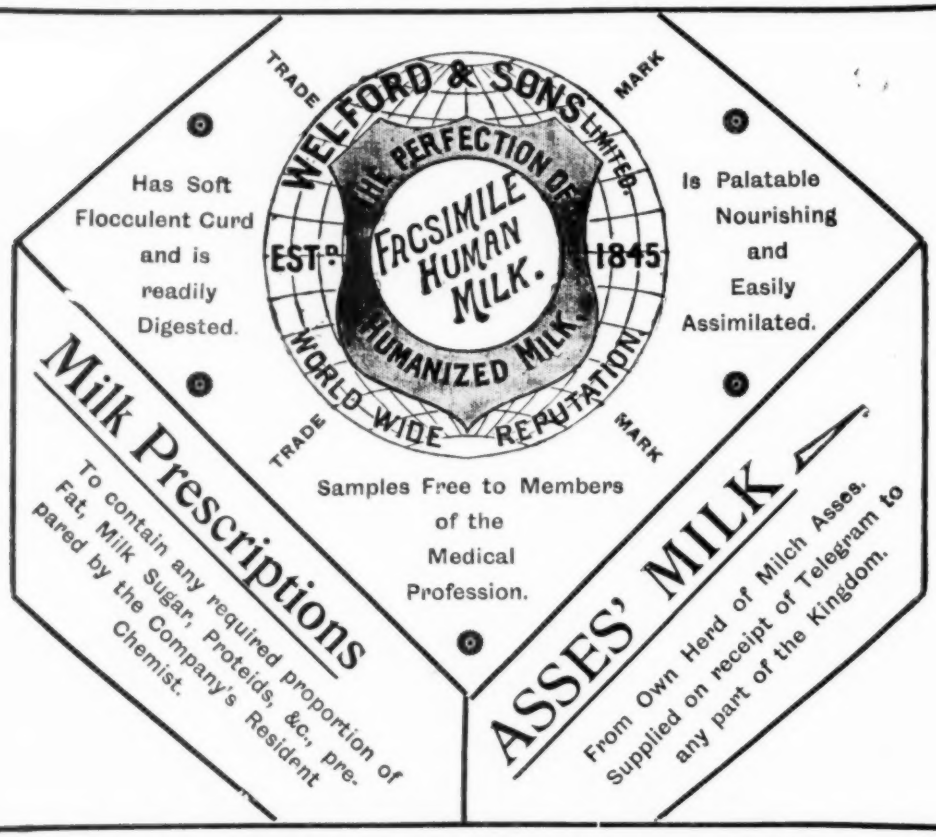
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LECTURE by Dr. ANDREW WILSON, F.R.S.E., &c.

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The objects of taking food are, first, to present the body with materials for its growth and for the repair of the tissues whereof it is composed; secondly, to supply it with matter for the development of its energy, or, in other words, "the power of doing work." The body, in this respect, resembles an engine. We have in the engine the iron or steel whereof it is built up, and we demand coal and water as a means for developing its power. Just as the engine consumes many times its own weight of coal and water in a week, so our bodies, in a relatively short space of time, will consume many times their weight in the foods which produce our working power. The engine's renewal of its iron and steel is not a thing which is frequently needed; and so in our bodies, while we are repairing our tissues and replacing our worn out cells day by day, that work is not to be compared in extent to the supplying of the "coal and water" of the body. The foods which give us our energy are the starches, sugars, and fats; those which build up the body are albumen and other foods of the beef-juice type. Of these last the gluten in flour and Cocoa, the casein of milk, the fibrin of blood, and the legumin of peas, beans, and lentils are also typical examples.

Now, tea and coffee are not foods at all in the sense in which I have been describing our articles of diet; that is to say, they practically do not contain, in any quantity to be of service, either albumen foods to build the body, or starch, sugar, or fat to give us working power. Why do we take tea at all? is a question which may be answered in two ways. First, we get so much of our daily supply of water in tea and coffee; and secondly, I suppose tea and coffee are stimulants in a mild way; but as regards nourishment we should at once undeceive ourselves. Tea and coffee are not foods, and people who have not too much money to spend on food are simply wasting their means when they buy either as an article of diet. The only people who can afford to take tea and coffee are those who have plenty of other foods to eat. They are mere adjuncts to food and not foods in themselves. It is pitiful, indeed, to think of thousands of working people taking tea under the idea that it is a food. They might as well consume beer under the belief that it is nutritious. Tea and coffee, like alcohol itself, are only food accessories. He who consumes them as foods is committing a big mistake in his practice and work of nourishing his frame. But with Cocoa the case is widely different. Here we have a perfect food, a bean rich in all the materials that are needed for the growth of the future plant. A cocoa bean is a kind of vegetable egg, which contains all that is needed to build up a living body.

Analyse Cocoa and see what it contains. First, nitrogenous matter, or gluten, which builds up the tissues; then fat in large quantity, and fat is the best food known for the development of energy or working power; then starch and sugar: then minerals; and finally theo bromine, a stimulant equal to the theine found in tea and the caffeine found in coffee. If anybody drinks tea because it contains a stimulant, then Cocoa can boast of a similar principle; but I beg of you to note that, in addition, Cocoa is a combination of foods—of true foods in every sense of the term. Put the case practically: A man goes out to his labours in the morning, and his wife provides him with a cup of tea or coffee and bread and butter. All the nourishment he is getting is contained in the bread and butter and in the sugar and milk of the tea. The tea itself, which has cost a fair amount of money, is worthless as food. Now suppose that, in the place of tea or coffee, this man takes a cup of pure Cocoa, with added milk and sugar: then, in addition to his bread and butter, he gets all the constituents of a good meal, which represents working power or energy of considerable amount. There is no gainsaying these facts; and a happy time it would be for the masses of our land if, in place of "the eternal teapot," they could substitute the cup of Cocoa. We should thus increase the national health, and that means increasing the national happiness and prosperity all round. The feeble, half-starved bodies of the tea-drinking classes would be exchanged for well-nourished bodies, and this at a considerable saving of money to boot. But see that you get a really good Cocoa. It is in itself an honest food. I should say, use

"FRY'S PURE CONCENTRATED COCOA,"

which is richest in flesh-forming and energy-producing constituents, and is without an equal in respect of its purity and all-round excellence. It is my ideal of perfection. There is no better food. It is a delightful beverage; and when we have regard to the nutritious nature of Cocoa, and to its cheapness, we may well call it by the name which the word "theobromine" itself implies—"The food and sustenance of the gods." Cocoa is, indeed, one of Heaven's best gifts to man.

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TO H.R.H. THE PRINCE OF WALES.

Pure Concentrated

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275 Gold Medals and Diplomas.

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FOR INFANTS, INVALIDS, AND THE AGED. FOOD.

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"Yours truly, F. COSTER."

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"Sirs,—I thought you would like to hear how the little Prince of Hohenlohe is getting on. I have fed him entirely on 'BENGER'S FOOD' since he was two and a half months old, and now he is eight months. He is the finest and strongest child I have ever had charge of. He really is a splendid boy, and always so good and happy. He has already four teeth, and has cut them without any trouble.

"I remain, Sirs, yours truly, "MARY GALLOWAY
"(Nurse to the little Prince Gottfried v. Hohenlohe)."

"Dec. 5th.

"I shall be very pleased to have my letter printed, or any portion of it you wish. I have the permission of Her Royal Highness Princess Alexandra von Hohenlohe. H.R.H. is very delighted with your food."

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"ESVACH WATER is an example of an aperient water **particularly free from the disagreeable tastes** so common among its class, while in addition it certainly **acts efficiently** after its manner **without griping.** The water contains

3·9 per cent. of aperient sulphates, and
0·96 per cent. of bicarbonate of sodium.

It is valuable all the more in that it contains **no lime salts in any form whatsoever.** The usual proportion of sulphates to carbonates and bicarbonates of sodium, potassium, and similar metals, with the exception of calcium, obtaining in the most commonly used aperient waters is from **60-65 to 1**; in Esvach the proportion works out as **4 to 1**, or thereabout. The carbonic dioxide present gives the water a pleasant fresh taste. The excess of bicarbonate of sodium renders the Water slightly alkaline, and therefore of value as a laxative in uric acid conditions, and in habitual constipation with absorption of acid products. The **dose** of ESVACH WATER is given as **2 oz.** equal to

37·4 grains of the combined sulphates, and
9·3 grains of bicarbonate of sodium,

quite a correct officinal dosage for repeated exhibition, and properly **productive of excellent results.**"—THE EDINBURGH MEDICAL JOURNAL, *August, 1899.*

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This Aperient Water owes its great success to its richness in sulphates of soda.

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PANOPEPTON

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Is instantly and wholly assimilable and sterile.

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Contains all the proteids of the beef and wheat in a soluble non-coagulable form.

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Is a Complete Food, containing the albuminoids, carbo-hydrates, and phosphates—the flesh, fat, and bone-making elements.

FAIRCHILD BROTHERS & FOSTER.
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A nourishing, restorative, stimulant
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For an adult the usual portion should be a dessertspoonful to a tablespoonful several times a day and at bedtime.

Supplied to the Medical Profession in 6 oz. and 12 oz. bottles, at 2s. and 3s 4d. each. Specimen and Pamphlet will be forwarded on request.

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PROFESSIONAL REPORTS ON

INGLUVIN.

[COPY.]

"FOREST GATE, LONDON, Oct. 18th, 1897.

"I have for over thirty years used Warner's Ingluvin in the sickness of pregnancy and for the nausea and inability to digest food often met with in womb troubles, as well as for vomiting after gynæcological operations and chloroform, and have been very pleased with the relief which has ensued.

(Signed) "H. ERNEST T——, M.R.C.P., F.R.C.S., &c.

"Late Physician to the Glasgow Hospital for Diseases of Women."

"——, 1897.

"In writer's practice the use of 'Ingluvin' has been limited to treatment of vomiting in pregnancy. However, his first trial of it was in a case of acute indigestion. Mrs. P——, aged thirty-eight, married and mother of a large family, had been unsuccessfully treated by a colleague. Every means available to an intelligent and skilful physician of experience had been employed, but apparently to no purpose, as patient grew worse day by day. Writer was called, and for a while fought malady with same or like weapons and a like result.

"Having exhausted every other resource at hand, preparation called 'Ingluvin' (then new) was thought of, and immediately an ounce was procured from nearest druggist and its use commenced. Without knowledge of its value, surprise at result obtained can be appreciated only by one who has had similar experience.

"Every morsel of food taken had been vomited as soon as received in stomach. Not only that, but drink and medicine were promptly ejected, vomiting continuing to recur at intervals, without apparent cause. Imperfect digestion, or rather, no digestion, had been succeeded by innutrition, patient's condition bordering on inanition. Gastric pain and repletion with eructations were the burden of constant complaint. Administered in 10-grain doses, mixed in cold water, medicine was readily taken without murmur. There followed cessation of pain and fulness, and return of ability to receive and retain light nourishment. So decisive and unmistakable were effects, that word 'specific' seems better fitted than any other to describe its action.

"Such was character of writer's introduction to 'Ingluvin.' From that time to the present, a period of fifteen years, preparation has been held in high esteem. For vomiting in pregnancy and sequelæ, malnutrition and debility, it is not too much to say, preparation has justified my confidence.

"Of the many cases of this class, only one can be remembered that seemed not to be greatly benefited by it. That occurred in practice of another physician—on request, and without seeing case, adaptability of 'Ingluvin' was suggested. As this was the one break in an otherwise unbroken record, writer regrets the lack of opportunity that keeps him from observing for himself exact condition of patient. The more so because in no case over which he has been permitted to exercise personal supervision has result been other than satisfactory in character. When treating the vomiting of pregnancy physicians would do well not to wait until everything else has been tried and go to 'Ingluvin' as a last resort, but to use it from the start and persist in its use to a finish. No remedy yet in use can surpass it in my experience, as well as that of Prof. Bartholow, Dr. Bell, of Newcastle, and Dr. Solares, Barcelona, Spain. It replaces pepsin in all cases in 8 to 10 gr. doses, before or after meals, in powder to be taken in water, wine, or milk.—Very truly, ——— "

Per ounce bottle, 4s., and in Tablets at same price.

TONO SUMBUL CORDIAL

(WM. R. WARNER & CO.).

An examination of the ingredients used in this combination and due consideration as to their physiological effects will satisfy the physician of the wide scope covered by this excellent tonic. The delicate stomach of the invalid rebels against the distasteful and nauseating bitter tonics. Tono Sumbul Cordial is free from this objection, having a delightful and pleasing taste in its combination with glycerine, therefore it replaces all such compounds.

Its potency is highly increased by the addition of the Iron and Cinchonia, the respective medicinal virtues of which, when properly presented, would admit of more than passing comment.

"A recent very elegant and palatable preparation of Wm. R. Warner & Co.—viz., 'TONO SUMBUL CORDIAL'—should be familiar to every practising physician. The formula is as follows:—

Sumbul	Acid Phosphate
Ferri Phosph.	Aromatics
Cinchonia	Sherry Wine.

"Sumbul, the root of Ferula Sumbul, natural order Umbelliferæ, habitat mountains of Russia in Asia, is a much used remedy of Russian physicians. Its action is similar to, but much more powerful than, Musk, Valerian, and allied drugs.

"It forms the chief ingredient of 'Tono Sumbul.' It has marked nerve tonic and stimulant properties, and is a positive heart tonic. From a personal experience with this cordial I have found it to be a true tonic to the stomach and most pleasing to the palate taken in tablespoonful doses before meals or as an after-dinner cordial to relieve flatulence and promote digestion. It certainly promotes appetite, quiets the nerves, and gives a general sense of well-being. The ingredients combined with it are the most important for the therapeutic effects desired. "F. S. G——, M.D."

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DOSE. One fluid drachm three times a day, or oftener, as indicated Also used externally in Ulcers, Bites, &c.

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It is so well known and so well liked by the profession everywhere, that it can be obtained in almost every drug store in every country in the world.

Avoid substitution. The doctor should always take special care to get the genuine, which is only made by Battle. Substitutes not only injure the well deserved reputation of Bromidia, and the Chemical House of Battle, but it also affects the reputation of the doctor and is often harmful to the patient.

DOSE:—One-half to one fluid drachm, repeated as indicated.

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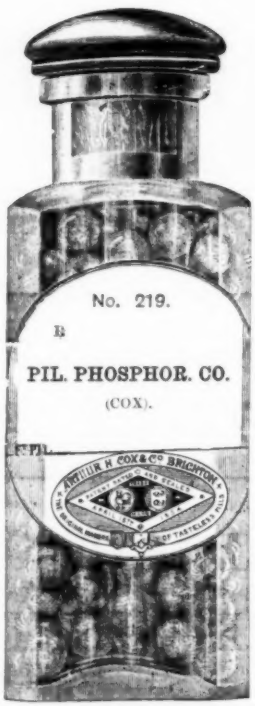

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DOSE.—One drachm diluted: equivalent to a full dose of the Trisnitrate.

Mr. Charles Ekin, F.C.S., writing of the prevalence of contaminations in commercial samples of Liquor Bismuthi, says: "It must be confessed that the Bismuth preparations of the Pharmacopœia, as at present met with in commerce, are far from satisfactory. It is only just, however, to Mr. Schacht, of Clifton, the inventor of the fluid preparation, to say that the *Liquor as prepared by him* is invariably free, not only from silver, but also from copper, antimony, and arsenic, and that in HIS prescribers have, at all events, ONE preparation that they may at all times depend upon."

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BLAND AND NON-IRRITATING.

FLUID HYDRASTIS IS NOT SOLD IN BULK.

In Leucorrhœa,
with thick albuminous discharge like the white of an egg, use locally by injection, 1 to 4 drs. to one pint of water, three or four times per day.

In Gonorrhœa,
as an injection; and in *Balanitis* as a wash; use 1 to 2 drs. to water 4 oz.

In Stomatitis,
Pseudo-membranous, ulcerative, or gangrenous, when the inflammation is sub-acute or characterised by profuse secretion of ropy mucus, use as a gargle or wash in proportion of 1 to 2 drs. to water 4 ounces. When the breath is offensive, Pot. Chlorate or Baptisia assists its action.

In Cystitis,
acute and chronic, when the urine is pale or greenish, and viscid from abundance of mucus, use internally 1 to 4 drs. in water 4 ounces. In the severer cases of Chronic Cystitis with phosphatic urine, rinsing out the bladder with tepid water, and following with Fluid Hydrastis 1 to 2 drs. to water 4 ounces (one ounce to be used as an injection into the bladder) is often of great benefit.

In Dyspepsia,
with undue activity of the mucous glands and deficient action of the gastric follicles, of which the symptoms are a heavily loaded tongue, especially at the base; and in the morning dull aching pains in the stomach, with sinking sensations, nausea, and occasional vomiting of vitiated mucus, use ½ to 1 ounce Fluid Hydrastis to a pint of sherry or native wine. Dessert-spoonful three or four times a day.

In Intermittents,
especially of the type characterised by disease of the *Gastro*-intestinal mucous membrane, with nausea, heavily coated tongue, broad and flabby and pale, or coated with yellow, dirty mucus; bowels constipated, or when moved, evacuations clay-coloured or streaked with mucus, use 1 to 4 drs. to water 4 ounces. Teaspoonful every three or four hours.

In Catarrh of the Intestines,
and superficial ulceration of the same; in fistula-in-ano, and hæmorrhage from the rectum. Internally, and locally by injection, 1 to 4 drs. to water 4 ounces.

As a Local Application,
to prevent decomposition, apply to the surface of cancerous growths and unhealthy ulcers and sores; as an injection into the bowels in diarrhœa and dysentery, and to correct the offensive character of many mucous discharges.

In many Chronic Diseases,
in which exist undue activity of the mucous membranes in some portion of the body, this remedy is of marked benefit as a *general tonic*. The following are some convenient forms for internal use:

℞ Fluid Hydrastis ½ to 1 fluid ounce, sherry wine sufficient to make one pint;
or ℞ Fluid Hydrastis ½ to 1 fluid ounce, syrup sufficient to make one pint;
or ℞ Fluid Hydrastis ½ to 1 fluid ounce, Glycerin 2 fluid ounces, water sufficient to make one pint. Teaspoonful to a dessert-spoonful three or four times per day.

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Produces a brisk and refreshing draught. It dissolves Uric Acid Concretions twelve times more freely than carbonate lithia. Is indicated in all cases of Gouty Affections, and in Stone or Gravel of the Bladder and Kidneys.

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This is a preferable Analgesic, having no toxic effects; does not interfere with the circulation of the blood nor the heart, nor does it reduce the temperature below normal. Is indicated in all cases accompanied by feverish symptoms, particularly in Rheumatism, Neuralgia, and similar ailments.

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These lozenges are agreeable to take, do not cause disagreeable eructations, and, slowly sucked, cause a plentiful flow of alkaline saliva, the presence of which in the stomach is so soothing when gastric pain is present.

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A highly nourishing compound, of especial value during Convalescence; also as an adjunct to medical treatment for Scrofulous and Consumptive persons, and in all impoverished conditions of the system, in Neuralgia and Nervous Affections, Sleeplessness, arising from overwork and loss of brain power. *In bottles, at 2/6, 5/-, and 7/6.*

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Eight ounces are equal to four ounces of perfectly digested and cooked lean rump steak. Most usefully employed in cases of Extreme Debility, Prostration, or when the digestive functions are greatly impaired, in severe Throat Affections, and many Surgical Operations. This, being a pre-digested nutrient, requires very little effort to ensure absolute assimilation; it is therefore retained when other preparations of meat are rejected.

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Quininæ Valerianat.,	1 gr.
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Ferri Sulph.,	2½ gr.
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These pills are admirably adapted for the assimilation of iron, as the ingredients react upon each other to form Ferrous Carbonate, which, owing to the protection afforded by the soluble coating, remains unaltered until freed for action by the stomach juices.

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1-10 gr., 1-8 gr., 1-4 gr., 1-2 gr., 1 gr.

This salt, which under ordinary circumstances rapidly spoils, keeps well in the Soluble Coated Pill.

This preparation is warmly advocated both by Drs. R—— and A—— in diseases of a suppurative nature, such as boils, carbuncles, felons, bronchial catarrh, croup, and abscesses, and in that form of acne which is frequently dependent upon an unhealthy condition of the uterine functions.

PHOSPHORI,

1-400 gr., 1-200 gr., 1-100 gr., 1-50 gr., 1-33 gr., 1-25 gr., 1-20 gr.

In our pills the Phosphorus is incorporated with the other ingredients while in solution so as to effect a uniform and thorough diffusion. The Phosphorus is perfectly protected from oxidation, which may be readily ascertained by cutting one of the pills, however long it may have been kept.

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DYSPEPSIA
. AND .
DISEASES OF THE STOMACH.

DYSPEPSIA
. AND .
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DOSE—½ to 1 drachm diluted with water. **Also supplied "sine Opio" when desired.**

Useful in all forms of Dyspepsia, Pyrosis, Gastric Pain and Vomiting, and for alleviating the pain in cases of Ulcer and Cancer of the Stomach.

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"In that most extensive class of cases met with in general practice, including DYSPEPSIA, GASTRODYNA, PYROSIS, &C., I KNOW OF NO OTHER REMEDY WHICH ACTS SO READILY AND EFFICIENTLY as the above preparation. Another by no means slight advantage in your happy combination is the rapidity with which it can be dispensed, and its solubility in various media.

"I am convinced that it only requires to be known to be extensively used."

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. . . Packed in 10 oz., 22 oz., 40 oz., and 90 oz. bottles.

Physicians will please note, when ordering "Mist. Pepsinæ Co. c. Bismutho" to write "HEWLETT'S" after it.

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BEST FOOD FOR INFANTS.

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Ratio of Albuminoids to carbohydrates. The ratio of the albuminoids to the carbohydrates is the same as in human milk—viz., 1 to 6·4; the ratio in cow's milk being only 1 to 3·8.

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Retention of the Phosphates and Fat. The retention of the fat and of the phosphates of the wheat and malt, which are so essential to bone formation. These exist chiefly in the outer portions of the grain, the very parts which some manufacturers pride themselves upon so successfully rejecting.

Absence of Fermentable sugar. The absence of the fermentable sugar, which in the various malt extracts and milk foods so often gives rise to Diarrhœa and Flatulence.

Verdict of Jury as to inferiority of imitations. It is the *only* Infants' Malted Food which obtained a Gold Medal at the International Health Exhibition, the Jury being comprised of such authorities as Dr. ATTFIELD, F.R.S.; G. W. WIGNER, F.I.C., the then President of the Society of Public Analysts; Dr. JAMES BELL, F.R.S., the Head of the Government Laboratories; and other distinguished Medical and English and Foreign Experts. This affords significant indication of the value to be attached to the numerous imitations, which, whilst pirating the descriptive notices of the Food, utterly fail to approach its standard of excellence.

SAVORY & MOORE,
143, NEW BOND STREET, LONDON, W.

NORDRACH TREATMENT FOR CONSUMPTION.

THE essentials of the Treatment are fresh air, rest, and above all NOURISHING FOOD, the quantity and quality of which are of the utmost importance.

PANCREATIC EMULSION

is not a quack medicine, but a FOOD made on correct scientific principles, supplying the solid fat of an ordinary dietary in a perfectly palatable and easily assimilated form.

Numberless and quite recent Testimonials from Medical Men, which medical etiquette forbids our publishing, testify emphatically to the immense benefit that is derived when it is taken, *increase of weight and well-being quickly resulting.*

In the NORDRACH TREATMENT it is found that as nutrition advances so will dyspepsia disappear. This is one of the most marked characteristics of the results of taking PANCREATIC EMULSION, which patients so gratefully note.

It would doubtless be a valuable addition to the dietary at the Nordrach and other institutions; but for a long time these institutions can only reach the few and well-to-do. For the thousands who cannot avail themselves of them, *this Food enables patients to carry out at home the principles of the Treatment.*

It has, in fact, for many years been of inestimable advantage on the very lines which quite recently have been brought so prominently forward.

SAMPLES FREE on Application, and a TRIAL QUANTITY to INSTITUTIONS.

SAVORY & MOORE,

SOLE MANUFACTURERS.

53

Medicinal Elixirs.

A class of eligible and palatable non-proprietary preparations of known composition.

Parke, Davis & Co.

USEFUL FORMULÆ.

Each fluid-ounce of Elixir contains the ingredients specified.

Aletris Compound.

Aletris farinosa,	30 grains.
Viburnum Opulus,	15 grains.
Mitchella repens,	30 grains.
Caulophyllum,	15 grains.
Helonias,	30 grains.

Aloin, Belladonna and Strychnine Compound.

Aloin,	1 grain.
Podophyllum resin,	1 grain.
Fl. extract Belladonna leaves,	5 minims.
Strychnine sulphate,	1-10 grain.

Bromide Compound.

Chloral,	120 grains.
Potassium bromide,	120 grains.
Ext. Cannabis Indica,	1 grain.
Ext. Hyoscyamus,	1 grain.

Iron, Quinine and Arsenic.

Ferric pyrophosphate, soluble,	8 grains.
Quinine Sulphate,	2 grains.
Arsenious Acid,	8-32 grain.

Kola Compound.

Kola Nut,	40 grains.
Coca,	40 grains.
Celery Seed,	40 grains.

Lactated Pepsin.

Lactated Pepsin,	80 grains.

Pepsin, Strychnine and Bismuth.

Sacch. Pepsin, U.S.P. 1890,	16 grains.
Bismuth & Ammonium citrate,	8 grains.
Strychnine,	8-100 grain.

Saw Palmetto and Santal Compound.

Saw Palmetto berries,	120 grains.
Corn-silk,	120 grains.
Sandalwood,	30 grains.

Supplied in 16 and 80 oz. bottles.

HYPODERMIC TABLETS

(P., D. & CO.).

Soluble, Accurate, Permanent.

The materials of which they are composed are absolutely non-irritating in character, and each tablet may be relied upon to contain precisely the quantity of medicament stated on the label.

NOT COMPRESSED SIMPLY MOULDED.

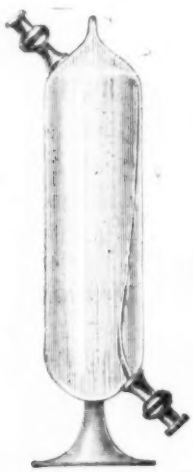
An immediate solution may be made in the barrel of the Hypodermic Syringe by the addition of the desired amount of water, thus dispensing with the quickly deteriorating solution.

P., D. & Co.'s Hypodermic Tablets will keep indefinitely in any climate.

SEND FOR OUR BROCHURE ENTITLED "HYPODERMIC MEDICATION," WHICH GIVES A FULL LIST OF THE HYPODERMIC TABLETS AND CASES SUPPLIED BY US.

PARKE, DAVIS & CO., LONDON.

55



The inner tube prevents blocking of the opening.

Tubes supplied with one nozzle or two nozzles for thick or thin spray.

PICTET'S ETHYL CHLORIDE.

The **BRITISH MEDICAL JOURNAL** reports:

"Whenever the production of local anæsthesia for small operations—such as the opening of abscesses—may be required, this apparatus acts well; and if applied with 30 g. of Ethyl Chloride will suffice for about ten cases. A larger size, with a capacity of 50 g., is also sold. Pictet's Ethyl Chloride, with which the instruments are charged, is manufactured at a very low temperature. At ordinary temperatures it evaporates rapidly."

By means of the Curved Glass Tube inserted in the nozzle of the Erect Containers the escape of the Liquid can be **INSTANTLY STOPPED WITHOUT REPLACING THE SCREW CAP.**

	Capacity.	
Erect Tubes, with Screw Nozzle and Inner Tube	50 grms. tube	2/-
,, ,, ,, ,, ,, ,, ,, ,, ...	50 ,, ,,	3/3
Erect Tubes, with Inner Tube and 2 Screw Nozzles for thick and thin stream	50 ,, ,,	3/6

CHRISTIA

An advantageous substitute for Oiled Silk and Gutta-percha Tissue. It does not become sticky when heated, neither does it deteriorate with keeping. Owing to its cheap price, it can be used for many purposes where expense bars the use of oiled silk.

Price of CHRISTIA, 1s. 3d. per yard, 40 in. wide.

ANTROPHORS,

for the treatment of diseases of the urethra and prostate, are flexible spiral springs, coated first with a thin and smooth insoluble mass, to protect the mucous membrane of the urethra from irritation, and then coated with a soluble medicated mass, which may contain any remedy desired. In chronic cases of gonorrhœa, Antrophors are specially recommended, containing a combination of an antiseptic with an astringent remedy, such as—

Tannic Acid and Resorcin, aā 5 per cent.
Resorcin, 5 per cent . and Zinc Sulph., 0·5 per cent.

The ordinary length supplied is 7 ins., but they are also made 9 ins. long for special cases.

PROSTATIC ANTROPHORS.

The Prostatic Antrophor has a length of 9 inches, and is made on the same principle as the Urethral Antrophor, except that the medicated portion is limited to the end, say 3 to 4 inches, the shaft being coated with an insoluble mass. Prostatic Antrophors possess the following advantages: the medicament is brought into the farthest part of the urethra only—*i.e.*, into the urethra posterior and into the bulb, which are in most cases affected at the same time.

THOMAS CHRISTY & CO.,

25, LIME STREET, LONDON, E.C.

Allen & Hanburys'

'Perfected' Cod Liver Oil

THIS Oil is called THE "PERFECTED" because:

I. It is absolutely PURE.

To ensure this, it is prepared at ALLEN AND HANBURYS' own factories in Norway. *Absolutely fresh and selected livers of the cod-fish only are used.* Ordinary oil is made from the livers of ling and other fish, and little or no care is taken to reject stale and decomposing livers, from fish dying in the nets.

II. All nauseous and irritating oxidation products which occur in ordinary oil are eliminated.

This is accomplished partly by the fact that the livers used are in perfect condition and partly by the adoption of ALLEN AND HANBURYS' special process of manufacture.

III. It is nearly tasteless, and does not cause unpleasant eructations, but has "almost the delicacy of Salad Oil" *(British Medical Journal).*

The disagreeable taste of the ordinary oil is caused by oxidation and the presence of deleterious impurities.

IV. Being pure, it is readily assimilable, and consequently of full therapeutic value.

It is tolerated by the most fastidious and sensitive stomachs, and is the only oil which does not "repeat."

The "PERFECTED" Cod-liver Oil is ONLY supplied in the original capsuled bottles bearing Allen and Hanburys' Signature in white across the label and their Trade Mark—a Plough—as figured.

Allen & Hanburys Ltd., Plough Court, Lombard Street, London

Cod-liver Oil Factories—**Lofoden and Söndmör, NORWAY.**

FERRO-MANGANESE PEPTONATE

AND

HÆMOGLOBIN (SQUIRE).

Hæmoglobin combined with Iron and Manganese in an Easily Assimilable Form.

Indicated in ANÆMIA, CHLOROSIS, LEUCOCYTHEMIA, NEURASTHENIA, &c.

LIQUOR NUCLEINICUS

(SQUIRE).

A 5 per cent. solution of Nucleinic Acid, free from Albumose. A non-poisonous germicide which has been found useful in Tuberculosis and Malignant Disease.

EGG & BRANDY EMULSION

(SQUIRE).

An emulsion of Cod Liver Oil in which egg is used as the emulsifying agent instead of mucilaginous substances. Contains 60 per cent. of Cod Liver Oil and is a perfect nutrient throughout.

SQUIRE'S CHEMICAL FOOD.

Known for 30 years as the best preparation of its kind

FOR DELICATE CHILDREN.

Many of the imitations sold as Parrish's Chemical Food differ in strength both from the original and one another in the most essential ingredients.

KASAK ELIXIR.

A Tonic Laxative — reliable, palatable, uniform in strength – without constipating reaction.

DOSE—For a Child, one or two Teaspoonfuls (according to age) at bedtime or in the early morning.

For an Adult, one Tablespoonful.

ALSO

KASAK PILULES. KASAK CAPSULES.

SQUIRE & SONS,

Wholesale & Manufacturing Chemists,

413, OXFORD STREET, LONDON, W.

58

The Ideal Tonic

in Convalescence.

Byno-Hypophosphites.

AN

Analogue of Syr. Hypophosphit. Comp.,

but SUPERIOR thereto,

BECAUSE BYNIN, Liquid Malt, which replaces the inert Syrup, is a concentrated nutrient and active diastasic agent.

Byno-Hypophosphites is specially suited to Convalescents, for it—

Promotes Digestion (1) by aiding and stimulating the process of amylaceous assimilation.

(2) by the general tonic effect upon the mucous membrane and special secreting glands of the alimentary canal.

Is an Anti-febrile Tonic and Cardiac Stimulant, owing to the presence of the Alkaloids of Cinchona and Nux Vomica, which, being in combination with their natural acids, are the more easily absorbed.

A Nerve Tonic and Hoemopoietic Agent, by virtue of the Hypophosphites of Iron, Manganese, and Lime associated with the above Alkaloids.

Byno-Hypophosphites is, in short, a mild yet very effective digestive tonic.

"One of the most popular tonics of the day."—*British Medical Journal.*

A sample sent free to medical men on application.

Allen & Hanburys Ltd., Plough Court, Lombard Street, **London.**

An Advance in the Treatment of Incipient Phthisis.

FROM the researches of BRISSONNET and BOREAU it would appear that the value of Creosote in Phthisis is largely due to its producing metabolic action, and that this action is much increased when Creosote is combined with Phosphoric Anhydride and also with Tannin. BRISSONNET states that the physiological resistance of the individual to Tubercle bacilli is increased by the agglutinative power of the blood. BOREAU lays stress on the antagonism between "Gouty" and "Tubercular" diatheses, and shows that Creosote, Tannin, and Phosphoric Acid are active agents in increasing the metabolism of the body. Even apart from these considerations, "Phosote" (phosphate of creosote) and "Taphosote" (tannophosphate of creosote) are, pharmaceutically, a great advance on ordinary Creosote or Guaiacol. Both preparations are nearly tasteless and odourless, and are non-caustic to the gastric mucous membranes. "Phosote" and "Taphosote" are both tolerated in large doses.

Phosote.

Brissonnet.

(PHOSPHATE OF CREOSOTE.)

Creosote - - -	80 per cent.
Phosphoric Anhydride	20 „

A bland, limpid liquid, nearly tasteless and odourless, which is not irritating to the gastric mucous membrane. When Creosote is combined with Phosphoric Acid the metabolic action produced is much more marked, and Phosote can be tolerated in larger doses and for a longer continuance than Creosote or Guaiacol.

Taphosote.

Brissonnet.

(TANNOPHOSPHATE OF CREOSOTE.)

Creosote - - -	76 per cent.
Phosphoric Anhydride	19 „
Tannin - - -	5 „

A bland, limpid liquid, nearly tasteless and odourless, which is not irritating to the gastric mucous membrane. The presence of Tannin makes the metabolism of the body to be even more pronounced than when Phosote only is taken, whilst the astringent property due to the tannic acid is especially useful if there be any tendency to diarrhœa.

DOSE of each preparation, one to two grammes three times a day.

The best way of administering Phosote and Taphosote is in the form of Capsules (half a gramme in each).

Capsules supplied in boxes at 4/6 each; Phosote and Taphosote (Liquid) in bottles at 4/6 each.

Descriptive Pamphlet, with Samples, FREE to the Profession on application.

SOLE AGENTS for Great Britain and the Colonies:

Allen & Hanburys Ltd., Plough Court, Lombard Street, London, E.C.

The "Allenburys" Foods for Infant Feeding.

A Progressive Series of Foods.

THE **"Allenburys" Milk Foods** so closely approximate in composition to the natural food as to supply an artificial diet almost identical with, and in practice found, when intelligently used, to be a reliable substitute for the mother's milk. So much so is this the case that an infant can take these Foods and the breast alternately without any disturbance to its digestive organs.

All ordinary substitutes for the mother's milk fail in some important attribute, thus the usual substitute, cow's milk, differs materially in composition, which no amount of mere dilution can correct, being deficient in fat, albumen, and lactose, whilst the casein is in excess. Futher, as obtained in towns, cow's milk invariably swarms with bacteria, many of which are pathogenic to the alimentary canal of the infant.

THE

"Allenburys" Milk Food No. 1,

for use from Birth to Three Months,

Affords, when prepared for use, a *correct* substitute for human milk. It is manufactured from fresh cow's milk, so modified as to present all the constituents of human milk in their true relative proportions. Being in a desiccated form it keeps perfectly and requires the addition of *boiled* water only to furnish a pure and easily digested food suitable for infants during the first three months of life.

THE

"Allenburys" Milk Food No. 2,

for use from Three to Six Months.

This No. 2 Food contains all the elements of human milk in proper proportions. To this is added a small proportion of the soluble products of the action of malt upon wheat, *i.e.* Maltose, Dextrine, and Soluble Phosphates. These ingredients are a valuable adjunct to the increasing needs of the infant economy, yet the Food is readily and easily assimilated, there being no unconverted starch present. The No. 2 Food is designed for children between three and six months of age.

THE

"Allenburys" Malted Food No. 3

for Infants of Six Months and upwards.

This is a farinaceous Food, prepared by improved methods after Baron von LIEBIG'S formula. The basis is fine wheaten flour which has been thoroughly cooked and partially digested by an active Malt Extract, so that a large proportion, but not all, of the starch has been converted. It is particularly rich in soluble phosphates and albuminoids. Being a farinaceous Food, it requires the addition of fresh milk in its preparation. This Food should be given from six months and upwards.

The "ALLENBURYS" FOODS should be given as directed and not continued beyond the time indicated. Thus the No. 1 Food should only be given during the first three months of life, the No. 2 between the third and the sixth month, and the No. 3 Food after the child is six months of age.

Note.—*When infants are reared artificially it is strongly advised that some fresh elements of diet be given. Eminent authorities have recommended that a little raw meat-juice, grape, or sweetened orange juice, be given two or three times a week after the first three or four months. Full directions as to this are issued with each tin of Food.*

The "Allenburys" Feeder.

This bottle has the nipple at one end and a valve-stopper at the other, so that, both being removed, it can be readily cleansed under the tap. The valve admits air behind the column of milk, thus avoiding the swallowing of air and the resulting wind-colic; while the rubber nipple is easily detached, and can be turned inside out. The bottle is graduated. Price 1/3 each.

Allen & Hanburys Ltd., Plough Court, Lombard Street, **London.**

TRADE MARK

'Tabloid' BRAND Products.

'TABLOID' BRAND QUININE BISULPHATE is reliable and characteristically prompt in therapeutic action. It is soluble, permanent, and does not harden on keeping. The superiority of this brand of quinine bisulphate has been widely recognised by the medical officers of the leading military and exploring expeditions of recent years.

It is supplied plain or sugar-coated in six strengths—gr. ½, 1, 2, 3, 4, and 5—in small and large bottles. 'Tabloid' Quinine Bisulphate, gr. 1, Effervescent, is also supplied in tubes of 25, at 1s. per tube.

'TABLOID' BRAND SODIUM SALICYLATE is physiologically pure, perfectly reliable in therapeutic action, and accurate in dosage. It is supplied as follows:—

'Tabloid' Sodium Salicylate, gr. 3, bottles of 25, 5d.; bottles of 100, 11d.
'Tabloid' Sodium Salicylate, gr. 5, " 25, 6d.; " 100, 1s. 2d.
'Tabloid' Sodium Salicylate, gr. 5, Effervescent, tubes of 25, 1s. per tube.

'TABLOID' BRAND QUININE SALICYLATE is a most convenient and reliable antipyretic and febrifuge. Being easy to take and physiologically pure, it may be prescribed when ordinary medicines are refused by, or disagree with, the patient.

'Tabloid' Quinine Salicylate, gr. 3, supplied in bottles of 24 and 100, at 1s. 2d. and 3s. 4d. per bottle.

AVOID IMITATIONS.—The general appreciation and adoption of this fine pharmaceutical preparations of B. W. & Co. by the medical profession throughout the world have encouraged imitators to offer crude substitutes. As the use of such inferior imitations is liable to prove injurious to patients, medical men are requested to report any cases of substitution which may come under their notice. To ensure the supply of pure and reliable preparations physicians should distinctly specify the trade mark 'Tabloid' or use the distinguishing initials B. W. & Co., or the full name, Burroughs Wellcome & Co.

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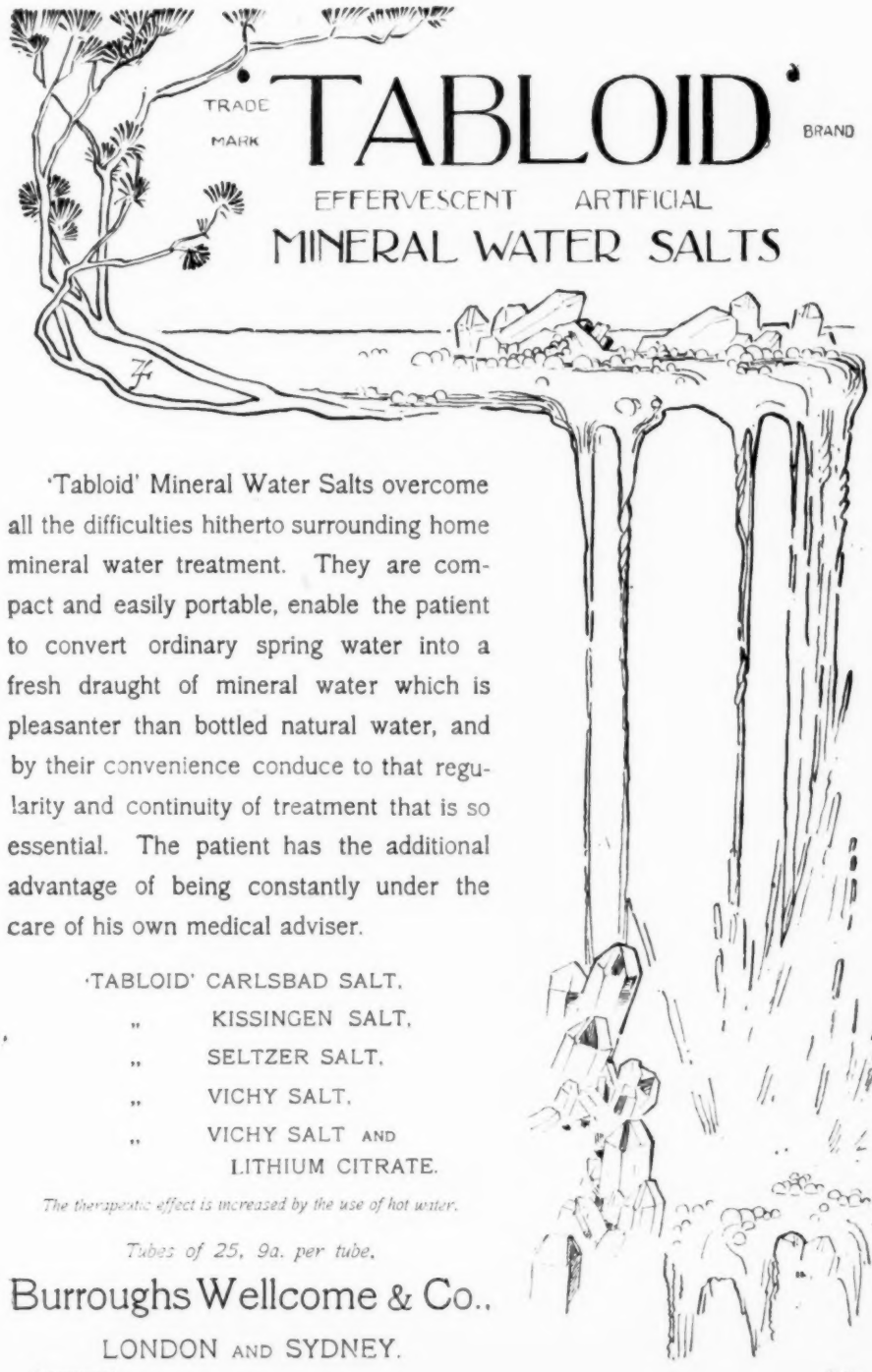
BURROUGHS WELLCOME & Co
LONDON AND SYDNEY



TRADE MARK

TABLOID BRAND

EFFERVESCENT ARTIFICIAL

MINERAL WATER SALTS

'Tabloid' Mineral Water Salts overcome all the difficulties hitherto surrounding home mineral water treatment. They are compact and easily portable, enable the patient to convert ordinary spring water into a fresh draught of mineral water which is pleasanter than bottled natural water, and by their convenience conduce to that regularity and continuity of treatment that is so essential. The patient has the additional advantage of being constantly under the care of his own medical adviser.

'TABLOID' CARLSBAD SALT.
" KISSINGEN SALT.
" SELTZER SALT.
" VICHY SALT.
" VICHY SALT AND LITHIUM CITRATE.

The therapeutic effect is increased by the use of hot water.

Tubes of 25, 9a. per tube.

Burroughs Wellcome & Co.,

LONDON AND SYDNEY.

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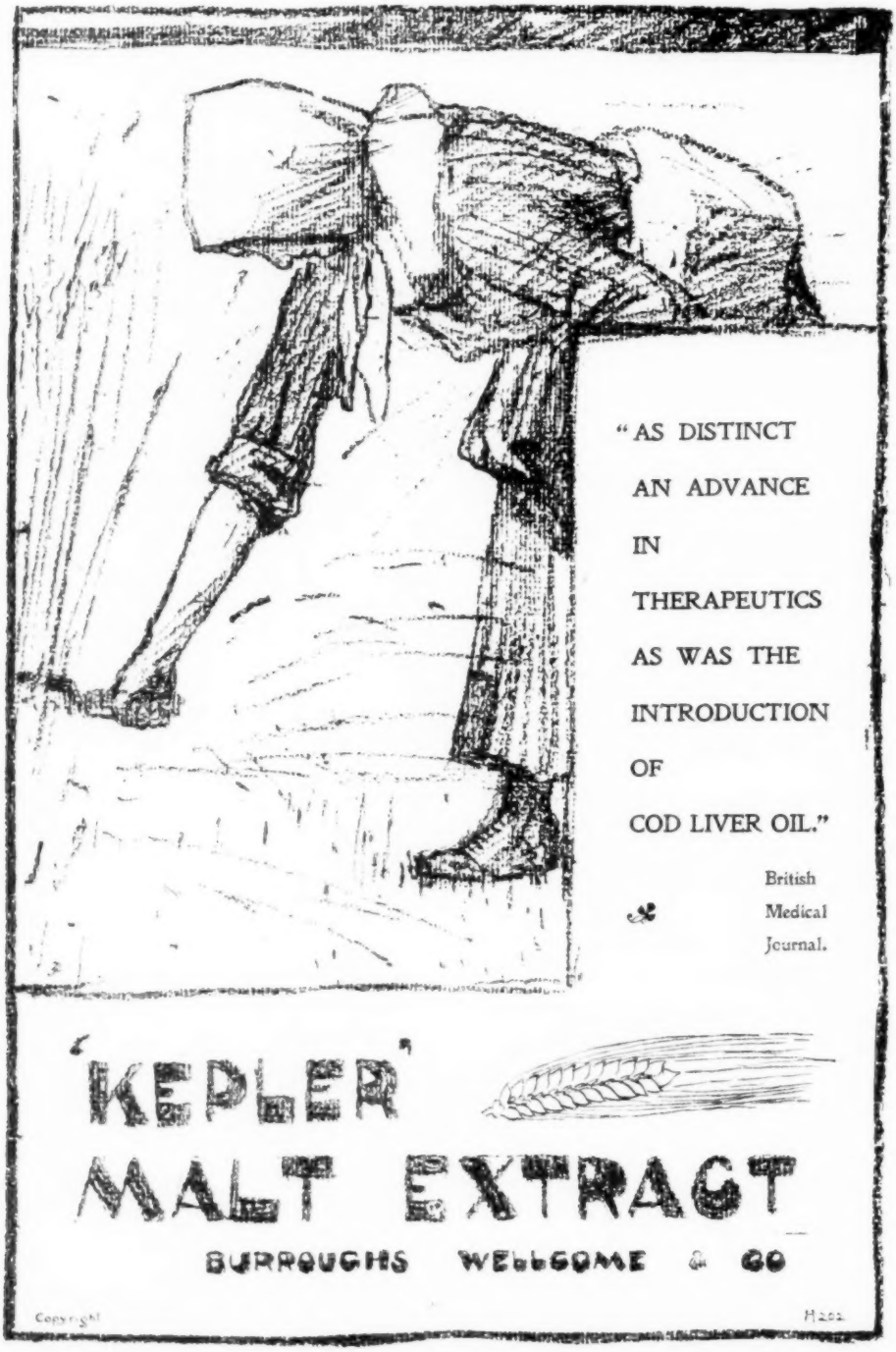
"AS DISTINCT
AN ADVANCE
IN
THERAPEUTICS
AS WAS THE
INTRODUCTION
OF
COD LIVER OIL."
British
Medical
Journal.
'KEPLER'
MALT EXTRACT
BURROUGHS WELLCOME & CO
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TRADE MARK 'ENULE' BRAND

Rectal Suppositories

BEFORE REMOVAL OF SHEATH.—SIDE VIEW.

AFTER REMOVAL OF SHEATH.—ACTUAL SHAPE.

BEFORE REMOVAL OF SHEATH.—TOP VIEW.

Design registered Nos. 309366/8.

'ENULE' SUPPOSITORIES . . . .

are protected from septic contamination or atmospheric influence until the moment they are used. This is accomplished by the hermetically sealed sheath of pure tin-foil in which each is enclosed. The shape is so improved as to render insertion easy and expulsion impossible by reason of the pressure of the sphincter muscle upon the tapering body of the suppository. In addition to these advantages, the even diffusion of the active principles throughout the mass of each suppository is a marked advance.

LIST.

	Per box of one dozen.
Belladonna Extract, gr. 1/4 ...	1s. 2d.
Belladonna Extract, gr. 1/2 ...	1s. 4d.
Belladonna Extract, gr. 1 ...	1s. 6d.
Bismuth Subgallate, gr. 10 ...	1s. 6d.
Glycerin (95 %) (Children's or Adults' size)	0s. 9d.
'Hazeline' Compound ... (Containing 'Hazeline,' Hamamelidin, Zinc Oxide, etc.)	1s. 6d.
Meat (Predigested)	1s. 6d.
Milk (Predigested)	1s. 6d.
Morphine Hydrochlor., gr. 1/4,	1s. 2d.
Morphine Hydrochlor., gr. 1/2,	1s. 4d.
Morphine Hydrochlor., gr. 1	1s. 6d.
Quinine Bisulphate, gr. 5 ...	1s. 4d.

Burroughs Wellcome and Co., LONDON and SYDNEY.

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H 145

VALUABLE FOODS.

CARNRICK'S SOLUBLE FOOD

For INFANTS.

Special Features:—

I.—Carnrick's Soluble Food is prepared from Cow's Milk, dextrinized Wheat Flour, and Malted Barley.

II.—The milk used in the preparation of Carnrick's Soluble Food is so modified by the process as to render it as easily digested as mother's milk.

Owing to this treatment, the milk in SOLUBLE FOOD, when brought into contact with the acid gastric secretion, forms a light, flocculent coagulum similar to that of human milk. While it is thus rendered easily assimilable, even for young infants, it is free from the objection to peptonised milk, as it does not remove the need for some digestive effort.

III.—The cereal constituent of "Soluble Food" is the best entire wheat flour, the starch being practically converted into dextrine and maltose.

IV.—A carefully adjusted proportion of sugar of milk is added, to bring up the saccharine constituents to the equivalent in mother's milk.

V.—Carnrick's Soluble Food is a COMPLETE Food for Infants, without the addition of milk or any food substance, being easily prepared with water only.

"Carnrick's Soluble Food excels all the other infants' foods by its greater amount of nitrogenous substances. It also contains a larger quantity of the bone-forming inorganic substances and of the solid constituents of milk."—Dr. STUTZER.

LIQUID PEPTONOIDS WITH COCA.

(Concentrated BEEF, MILK, and GLUTEN, perfectly Digested and combined with WINE of COCA.)

The value of Coca as a nerve stimulant is now very generally recognised, and it has taken its place as a useful adjunct in the treatment of many conditions such as insomnia, despondency, and as a heart and general tonic. Its property of strengthening the voice, due to its being a tensor of the vocal chord, makes it very useful for the singer and public speaker. One of the most efficient and elegant media for its exhibition is the preparation "LIQUID PEPTONOIDS WITH COCA." No disagreeable reaction has been found to result from the use of Coca when combined with a fluid digested food, and this combination is more useful in many cases than a mere coca wine. LIQUID PEPTONOIDS WITH COCA is a reliable tonic, and at the same time is extremely palatable, aids digestion, and supplies easily assimilated nourishment.

CARNRICK'S BEEF PEPTONOIDS.

(POWDER).

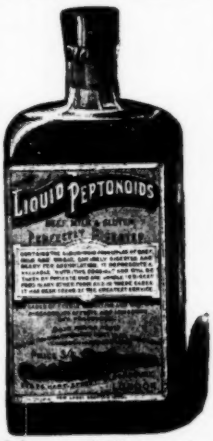
(BEEF, MILK, and GLUTEN.)

An easily digested, palatable, ASEPTIC, and nutritious Food combination.

"A concentrated form of nitrogenous food, easy of digestion and well adapted and convenient for medical use."
—THE LANCET.

Carnrick's Liquid Peptonoids

Is prepared from the nutritive elements of Beef, Milk, and Wheat. These constituents have been peptonised and rendered capable of assimilation by the feeblest system, and are dissolved with sufficient alcohol to preserve the preparation, and impart to it the flavour and aroma of a pleasant cordial.



It has been shown clinically that "Liquid Peptonoids" is a most useful dietetic aid, as it is frequently taken and assimilated in cases where other nutriment was not tolerated, or not being properly assimilated, failed to nourish the patient.

"Liquid Peptonoids" has further been found to stimulate the action of the digestive organs. While a food and an aid to digestion, it is also a valuable stimulant and tonic.

"Liquid Peptonoids" has the stimulating property of a pleasantly mild cordial, and so renders useful service in conditions of debility, exhaustion, "brain fag," and general and nervous depression. It possesses this great advantage over other stimulants: that, containing nourishing, easily-digested food, the stimulation it affords is not followed by any reaction. *The system is fed at the same time that it is toned and braced up.*

"Readily taken and well borne even by a very delicate stomach."—BRITISH MEDICAL JOURNAL.

"An invaluable food for invalids whose digestive faculties are impaired. Owing to the predigestive processes, 'Liquid Peptonoids' can be immediately assimilated by the stomach, even in conditions when it cannot exercise for itself the physiological powers of digestion. .... Its most valuable feature is that clinically it has proved itself capable of absorption, when practically everything else has been rejected by the stomach."—THE HOSPITAL.

CARNRICK & CO., Ld., 24 & 25, Hart St., Bloomsbury, London, W.C.,

Will be pleased to send Samples free of charge and carriage paid to Medical Men.

Maltine

The word "MALTINE" is our registered Trade Mark.
In prescribing kindly specify "MALTINE COMPANY."

"In diastasic power 'MALTINE' is superior to the best extracts of Malt I have ever seen."—Dr. STUTZER, Director of the Imperial Agricultural Chemical Laboratory for Rhenish Prussia.

"Clinical experience enables us to recommend it as a nutritive and digestive agent, in virtue of its albuminoid contents and its richness in phosphates and diastase."—BRIT. MED. JOUR.

MALTINE
WITH
COD LIVER OIL.

"Patients unable to tolerate the purest and most carefully prepared Cod Liver Oil can readily digest and assimilate it when combined with 'MALTINE.'"—BRITISH MEDICAL JOURNAL.

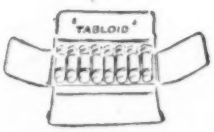
"MALTINE" with COD LIVER OIL represents a combination of "MALTINE" and 30 per cent. of the best, carefully selected, Norwegian Cod Liver Oil.

Unlike emulsions, "Maltine" with Cod Liver Oil contains no inert nor therapeutically valueless material.

WE SHALL BE PLEASED TO SEND SPECIMENS FREE OF CHARGE AND CARRIAGE PAID TO MEDICAL MEN.

THE MALTINE MANUFACTURING COMPANY, LTD.,
24 & 25, HART STREET, BLOOMSBURY, LONDON, W.C.

TABLOID BRAND MEDICINE CHESTS



No. 17
'TABLOID' MEDICINE CASE.

No. 16A
'TABLOID' MEDICINE CASE.

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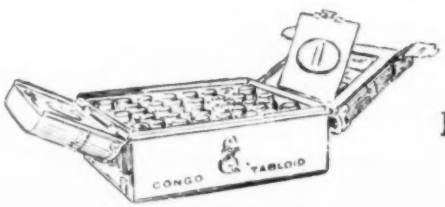

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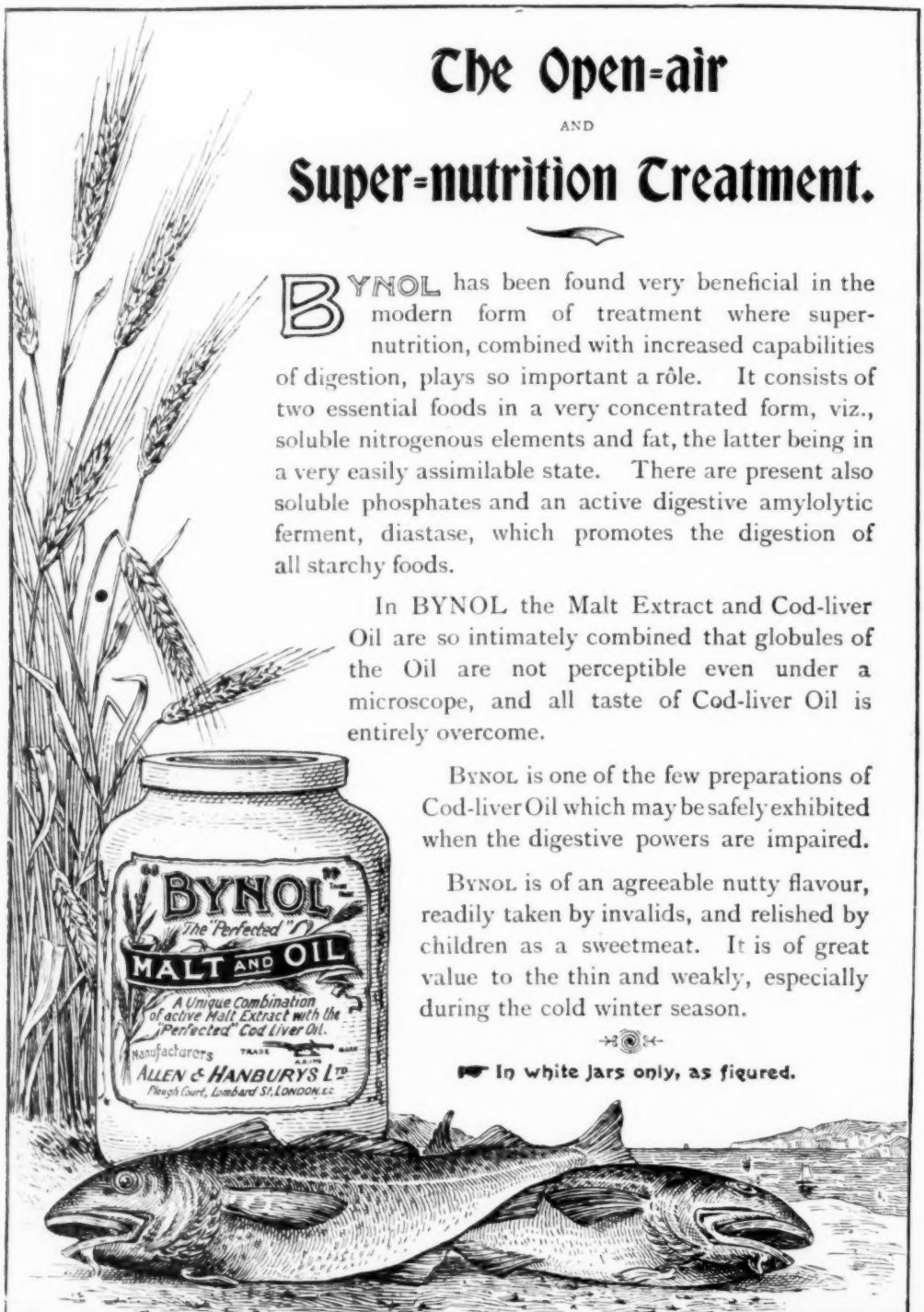
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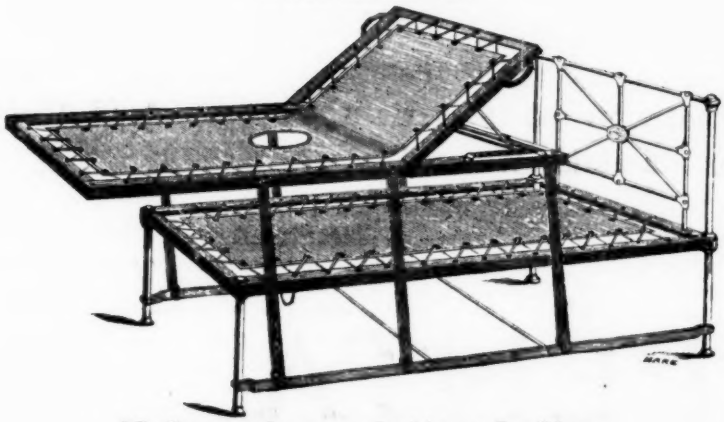

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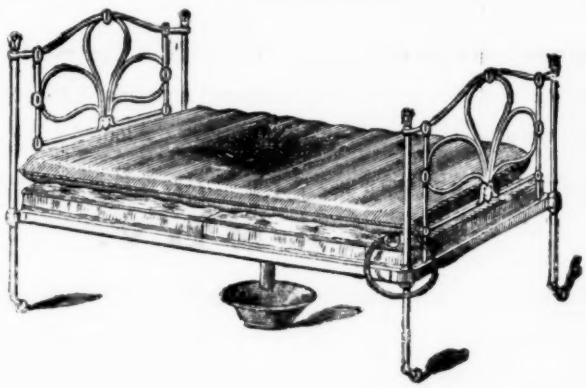

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 4th, 1900.

Date.	Barometer reduced to Sea Level and 32° F.	Directions of Wind.	Rainfall.	Solar Radiation in Vacuo	Maximum Temp Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
Dec. 29	28·69	S.	0·13	55	51	35	47	49	Cloudy
,, 30	29·03	S.W.	0·19	74	50	45	45	45	Cloudy
,, 31	29·86	S.	...	62	47	37	38	39	Fine
Jan. 1	29·90	S.E.	...	51	50	38	40	41	Foggy
,, 2	29·64	S.W.	0·42	57	53	41	50	50	Raining
,, 3	29·33	S.W.	0·09	62	52	44	44	46	Cloudy
,, 4	29·57	N.	0·13	46	45	43	43	45	Overcast

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (13th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (8th).—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Mr. C. Mansell Moullin: Excision of the Vesicula Seminales.—Dr. W. J. Gow: Some Remarks on the Operative Treatment of Uterine Fibroids.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (40, Leicester-square, W.C.).—7 P.M. Council Meeting. 8 P.M. Special Meeting to consider the following proposed new Bye-law: That the Council be empowered to make Grants in aid of Scientific Research in connexion with Dentistry. Ordinary Meeting. Adjourned Discussion on Mr. J. F. Colyer's paper on Some Notes on the Treatment of Superior Protrusion (opened by short paper from Mr. Lloyd-Williams, and Mr. D. Hepburn will show some photographs of cases bearing on the subject). Casual Communication:—Mr. E. W. Harwood: The Relief of Apical Overcrowding and its Results.

TUESDAY (9th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Dr. F. Warner: Ophthalmoplegia Externa complicating a Case of Graves's Disease.—Mr. A. G. R. Foulerton and Dr. H. C. Thomson: Investigation into the Nature of Changes produced in the Nerve-cells of the Cerebral Cortex by the action of Tetanus Toxin.

WEDNESDAY (10th).—HUNTERIAN SOCIETY.—8.30 P.M. Paper:—Dr. D. Grant: Cases illustrating various Conditions giving rise to Deafness (with demonstration of cases).

THURSDAY (11th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. A. Giles, Dr. Purcell, and Dr. F. Edge. Annual Meeting. Election of Officers, &c. President's Valedictory Address.

FRIDAY (12th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Clinical Evening. The following cases will be shown:—Mr. J. Hutchinson, jun.: Complete Sub-peritoneal Resection of the Os Calcis.—Mr. Lunn: (1) A case of Double Facial Diplegia in a Woman; (2) Congenital Luxation of the Right Hip in a Child, with Skiagraph; (3) Paroxysmal Hæmoglobinuria in a girl of 10 years.—Mr. C. J. Symonds: Malignant Disease of the Thyroid after two Operations.—Mr. Jackson Clarke: Case of Excision of the Neck of the Lower Jaw for Ankylosis.—Other cases will be shown. Patients will be in attendance at 8 P.M.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION (11, Chandos-st., Cavendish-square, W.).—4 P.M. Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (9th).—NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, W.C.).—3.30. P.M. Dr. J. Taylor: Demonstration on Cerebral Tumours.

WEDNESDAY (10th).—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—4.30 P.M. Dr. M. Dockrell: Malignant New Growths. (Post graduate Course.)

THURSDAY (11th).—CHARING-CROSS HOSPITAL.—4 P.M. Dr. Green: Cases in the Wards. (Post-Graduate Course.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE, OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1899, which was completed with the issue of Dec. 30th, and the Title-page to the Volume, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1899 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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LORD CHANCELLOR SELBORNE and LORD JUSTICE JAMES stated that the Defendant had made a deliberate misrepresentation of the decision of Vice-Chancellor Wood.

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It was proved in Court, on affidavit by Mrs. Forbes, of Paris, that the testimonial published in *The Times*, November 14th, 1865, speaking of the great efficacy of Chlorodyne in Cholera, referred to Dr. J. COLLIS BROWNE'S Chlorodyne, and that she never used any other; that she had written to the Defendant Freeman to that effect, notwithstanding which notice the Defendant publishes the said testimonial as referring to his medicine.

The Editor of the *Medical Times*, in his report on Chlorodyne, January 13th, 1866, gives information that the Chlorodyne referred to was the medicine introduced by a retired Army Medical Officer, which was Dr. J. COLLIS BROWNE; still this is published by the Defendant as testimony to his medicine.

Numerous affidavits from eminent Physicians and others were produced in Court, stating that Dr. J. COLLIS BROWNE was the inventor of Chlorodyne, and that when prescribing they mean no other.

The Defendant himself publishes that his compound is, in effect and composition, quite different from any other preparation; nevertheless, he assumes the name, testimonials, &c., of Chlorodyne.

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DOSE:—Half to One Fluid Drachm in water, either alone or combined with Syrup of Wild Cherry or Glycerin.

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VERNISOL is miscible with powders, aqueous and spirituous liquids, fats, and also with fixed and volatile oils.

Supplied in Collapsible Tubes. Write for Sample and List of Combinations kept ready.

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GUAIACOLATED SERUM.—Normal Bullock Serum medicated with Phosphite of Guaiacol (Gufossol).

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GUAIACOLATED ORGANO-SERUM.—Normal Bullock Serum medicated with Gufossol and Organic Extract.

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The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, FINDS THAT NO TWO OF THEM ARE IDENTICAL, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, IN THE PROPERTY OF RETAINING THE STRYCHNINE IN SOLUTION, and in the medicinal effect.

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NUTRITIVE. TONIC. STIMULANT.

OLEUM MORRHÆ COMP. (WAMPOLE) is a palatable solution of the Alkaloids and other medicinal principles of Cod-Liver Oil in a menstruum of Malt Extract, to which is added the Compound Syrup of Hypophosphites, and fluid extract of wild cherry bark.

What it is

These medicinal principles are so combined with choice aromatics as to make an agreeable mixture, entirely free from the nauseating properties of fish-oil. It is readily taken and assimilated by patients who cannot retain the plain oil or its emulsions. It never disturbs the stomach or produces nausea or eructations as crude Cod-Liver Oil does, but on the contrary, produces a marked increase in appetite.

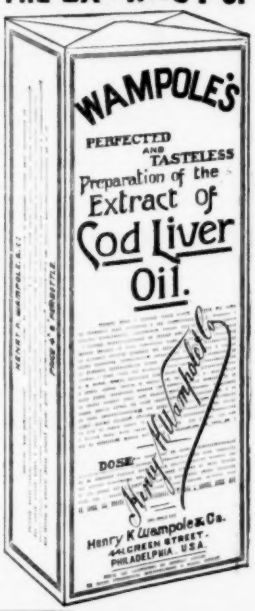
What it does

Weight is rapidly gained by its use, as the scales will show after taking it a short time. Young and old delight in taking it as it does not suggest either in odour or taste Cod-Liver Oil at all. It reminds one of a liquor like Curaçao.

An Ethical Article

Therapy

For anemia, chlorosis, hysteria, and nervous diseases due to fatigue and exhaustion it is of great value. For tonsilitis, bronchitis, phthisis, and the various symptoms of pulmonary disease (insomnia, night sweats, hectic, &c.) it is almost a specific. It is a strictly ethical preparation, a medicine of real merit, and worthy in every way of your confidence. It is advertised in medical journals and among the Profession only.



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The most soluble and readily assimilable form of phosphate of lime, a reconstituent tonic for lymphatic & strumous subjects.

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capsules have the combined advantage of administering creasote and cod liver oil in a form which never irritates or disagrees.

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Capsules of Mysore sandal wood oil of absolutely reliable quality, freed from resin and other noxious impurities.

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The true active principle of parsley in capsules—a well known and most trustworthy emmenogogue.

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Morrhuol is an alcoholic extract of cod liver oil. It is obtained in the form of a brown, aromatic, bitter and partially crystallisable substance which has been shown to comprise all the alkaloids and active aromatic principles obtainable from the best light-brown cod liver oil. Given in the form of **capsules**, it produces all the therapeutic effects of the oil, over which it has the very great advantage of never exciting repugnance, of being readily and completely absorbed and of never giving rise to eructations, nausea or other indication of gastric intolerance.

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SOMATOSE contains nearly 80 per cent. of Meat Albumen, is invaluable in wasting diseases, puts life and strength into the weakest invalids, as well as those whose condition precludes the use of ordinary food.

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SOMATOSE is an almost tasteless and odourless powder, easily tolerated by the most delicate stomachs.

SOMATOSE is not a Patent Medicine or a drug, but a Therapeutic Food in a form which has never before been obtained. It is easily soluble in water, milk, soup, coffee, cocoa, &c.

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Free from Alkaline Iodides. Palatable. Easily assimilated. A perfect substitute for Cod Liver Oil and Iodides.

LYMPHÆMIA. ANÆMIA. DYSMENORRHŒA. PULMONARY AFFECTIONS.

·77 grain (0·05 gm.) of Iodine and 1·54 grain (0·10 gm.) of Tannin per tablespoonful. *One tablespoonful at meals twice a day.*

"THE LANCET of January 6th, 1894, in its Analytic Report, states:—"The above preparation, therefore, which contains no free iodine, but which yields it in full quantity on the slightest provocation, is calculated to lead to more extended application. It certainly deserves trial."

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NOURRY'S IODINATED WINE is not advertised to the public. It owes its success entirely to the Medical Profession.

DR. MOUSSETTE'S PILLS.

Two of these Pills per day will be found a very prompt and effective remedy for all kinds of

NEURALGIA.

·003 of a grain (0.0002 gm.) of Crystallised Aconitine } per Pill.
·77 of a grain (0·05 gm.) of Quinia }

DR. CLIN'S CAPSULES AND PILLS (DRAGEES) OF BROMIDE OF CAMPHOR.

Prescribed by the late eminent Professor CHARCOT.

An invaluable Specific for Nervous Troubles, such as

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3·08 grains (0·20 gm.) per Capsule.
1·54 (0·10 gm.) grains per Pill.

DR. RABUTEAU'S IRON PILLS (DRAGEES).

The best ferruginous preparation known in therapeutics. Absorbed in the form of Chloro-albuminate of Iron, therefore very digestible. Considered a real specific for

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Causes neither constipation nor diarrhœa.

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TROPON is a natural pure albumen prepared after the method of Professor FINKLER, M.D., of the University of Bonn, from animal and vegetable substances. It does not contain casein and is *absolutely free* from bacilli.

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An increase in the weight of a patient of 2 st. 1⅓ lb. was obtained by the exclusive administration of Tropon in a case of severe Peritoneal Tuberculosis in a comparatively short time. No other food agreed with the patient.

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CHOCOLAT MENIER.

FOR BREAKFAST.

AWARDED PRIZE MEDALS

AT ALL EXHIBITIONS.

DAILY CONSUMPTION, 50 TONS.

SOLD RETAIL EVERYWHERE.

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THE

Aylesbury Dairy Company's

Life Belt Brand,

PREPARATIONS OF MILK

FOR

INFANTS and INVALIDS.

SEVEN SILVER MEDALS AND OTHER HIGHEST AWARDS.

HUMANIZED MILK.
PEPTONIZED MILK.
WHEY.

STERILIZED MILK.
STERILIZED CREAM.
&c., &c., &c.

Beware of Spurious Imitations.

HUMANIZED MILK,

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AND BRANCHES.

N.B.—The Company have no Agents, and the Public are cautioned against Imitations.

SAMPLE CASES SENT FREE OF CHARGE TO MEMBERS OF THE MEDICAL PROFESSION ONLY.

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To be used on any ordinary Bedstead or Couch

For Paralysis, Fevers, Consumption, Rheumatic Affections.

For Sale or on Hire.

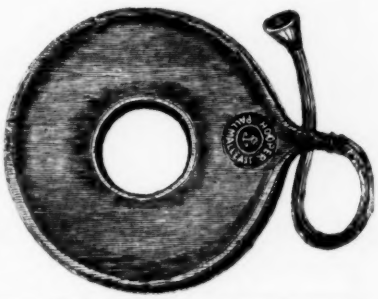
For Bedsores, Spinal Affections, and all Bedridden Patients.

HIGHEST AWARD AT THE INTERNATIONAL MEDICAL AND SANITARY EXHIBITION, 1881.

☞ Messrs. Hooper & Compy. beg to invite the attention of the Profession to their system of hiring their Water Beds otherwise than in contagious or infectious diseases, and feel assured that where outlay is a consideration the Profession will appreciate and avail themselves of this hiring system.

Horse-shoe Shape for Sacrum, Os Coccygis, &c.
This form of cushion also facilitates the use of the Bed Slipper or Urinal.

Elastic Hot-Water Bottles for feet, stomach, chest, &c.



Round, with open centre to relieve Bedsores or Pressure on Hip, Buttock, &c., also for sitting on.

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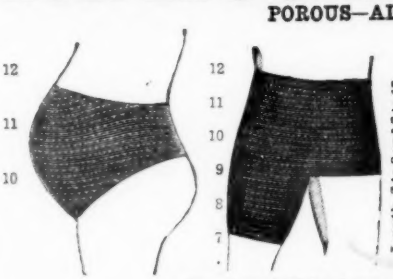
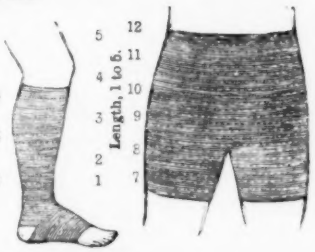
POROUS—ALLOWING FREE VENTILATION.



The measure should be taken next the skin, as follows:—

1, Round thickest part of instep.
2, Round ankle-bone.
3, Round small of leg.
4, Round thickest part of calf.
5, Round leg, just below knee.
6, Round knee-cap.
7, Round leg, just above knee.
8, Round middle of thigh.
9, Round top of thigh.
10, Round body at hips.
11, Round body at umbilicus.
12, Round waist.

The length should also be given.



Experienced Male always in attendance for fitting Trusses, Belts, and Stockings.

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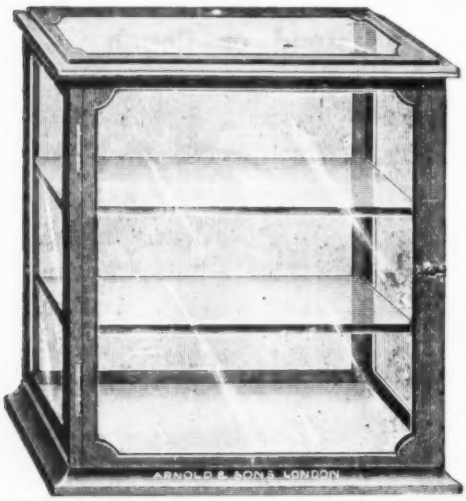
NEW ASEPTIC INSTRUMENT CABINETS

(REGISTERED).



Price

18 × 15 × 8 ins.

With 2 Plate Glass Shelves

£1 15s. 0d.

Aseptic Enamelled Iron Stand for above, 15/-.

LONDON MANUFACTURE.

Price

24 × 18 × 11 ins.

With 2 Plate Glass Shelves

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Aseptic Enamelled Iron Stand for above, 17/6.

LONDON MANUFACTURE.

EXTRACT FROM THE LANCET, March 5th, 1898:—"Messrs. ARNOLD & SONS, of West Smithfield, inform us that they have constructed a cabinet for the storing of surgical appliances at a price that will place it within the reach of every general practitioner. It is made of iron enamelled white, with ¼-in. polished plate glass top, back, sides, and door, with two plate-glass shelves with polished edges, and is manufactured in two sizes—18 × 15 × 8 in., 35s.; and 24 × 18 × 11 in., 55s. The Cabinet should prove useful to many institutions and practitioners."

THE PHONOPHORE

(AN IMPROVED STETHOSCOPE.)

Patented.

FIG. 1.

FIG. 2.

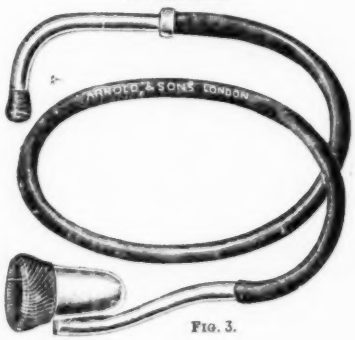

FIG. 3.

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"DEAR SIRS,—I beg to thank you for the best Stethoscope I have ever used, and during the last forty years I have used a good many.—Yours faithfully, W. M. D."

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"GENTLEMEN,—I am exceedingly pleased with the Phonophore. It is the best form of Stethoscope I have ever used, and deserves a big sale.—Yours faithfully, J. B."

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"GENTLEMEN,—I am extremely pleased with the Phonophore, it was exactly what I required. Thanking you for your very prompt attention —Yours truly, W. R. W."

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"DEAR SIRS,—I received the Phonophores safely, and am much pleased with them."—Yours truly, J. B. H."

"Merthyr Vale.

"GENTLEMEN,—Your Phonophore-Stethoscope received is very factory.—Yours faithfully, D. K. D."

PHONOPHORE (Single) with metal stem, nickel-plated, vulcanite ear-piece, and india-rubber cap fitted to chest-piece, complete (Fig. 1)	£0	5 6
Do. Binaural, with india-rubber ear-pieces and cap fitted to chest-piece, complete (Fig. 2)	0	12 6
Do. with flexible india-rubber tube, ear-piece, and plated mount, complete (Fig. 3)	0	6 6
Do. Chest-piece only, for attaching to Binaural Stethoscope	0	5 6

ARNOLD & SONS, Surgical Instrument Manufacturers,

By Appointment to Her Majesty's Government; the Honourable Council of India; The Admiralty; The Crown Agents for the Colonies; Her Majesty's Prisons; Foreign Governments; Royal Chelsea Hospital; St. Bartholomew's Hospital; and the principal Provincial and Colonial Hospitals, &c.

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Telegraphic Address: "INSTRUMENTS, LONDON." ESTABLISHED 1819. Telephone No. 514 (Holborn).

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For GENERAL SUPPORT, PREGNANCY, PROLAPSUS UTERI, UMBILICAL HERNIA, UTERINE SUPPORT, LAPAROTOMY, FLOATING KIDNEY.

Personal Attention and Skill in Measuring, Making, and Fitting Indispensable.

OVER 17,000 HAVE BEEN SOLD. THE ONLY ONES WHICH WILL NOT RUCK UP.

No Belt which is cut in one piece can give efficient support to the abdominal walls without undue pressure on the hips. They are so constructed that the part which surrounds the abdomen is distinct from that which surrounds the hips, so that each part can be adjusted properly, and as the size of the hips varies very much in different persons, this is a matter of the first importance.

THE GREATEST IMPROVEMENT EVER EFFECTED.

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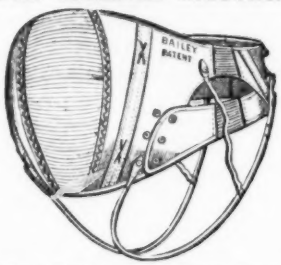
FOR GENERAL SUPPORT.



Acknowledged to be the greatest improvement ever effected. "Cannot shift or ruck up."—*Vide* THE LANCET, BRITISH MEDICAL JOURNAL, MEDICAL TIMES AND GAZETTE. So adjustable that a misfit is impossible.

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Competent Male and Female Fitters always on the premises, or can be sent to take instructions.

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INDIA-RUBBER TRUSSES FOR INFANTS.
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A badly fitting stocking, or one made of unsuitable material, is not only no good, it is positively harmful.

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MESSRS. BAILEY exhibited some Silk and Cotton Elastic Stockings of a surprisingly fine texture, hardly to be distinguished from ordinary fine hose and yet affording efficient support.

Books of order forms and directions for measurement post free.

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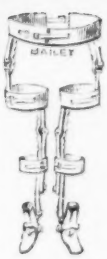

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THE LATEST CLINICAL THERMOMETER

IS HICKS'S NEW PATENT ASEPTIC CLINICAL THERMOMETER, "THE HYGIENIC,"

which has no divisions or figures on the tube, so that it can always be washed in water only. This Thermometer will supply doctors with what they have been looking for for years, viz., a Thermometer that requires no washing in disinfectant solution after being used. There are no marks of any kind on the stem to convey infection or hold dirt, the divisions and figures being on the case itself, into which the Thermometer is slipped after use, and a reading of the temperature then taken. For nervous patients this Thermometer is invaluable, as the medical man can take his temperature without letting him know what it is, the Thermometer itself conveying no intimation whatever of the result. The case is a neat black metal one, and the divisions and figures are engraved in pure gold upon it, so as to be beautifully clear and distinct.

Ordinary plain Hospital Clinical Thermometer, as above	- - - -	each	5s. 0d.
Do. "One" or "Half" minute	do.	do.	- - - -	,,	5s. 6d.
Lens Front, ordinary time	do.	do.	- - - -	,,	6s. 0d.
Do. "One" or "Half" minute	do.	do.	- - - -	,,	7s. 0d.

Any of these can have my easy shake down "Facilis" improvement at an extra charge of 1s.

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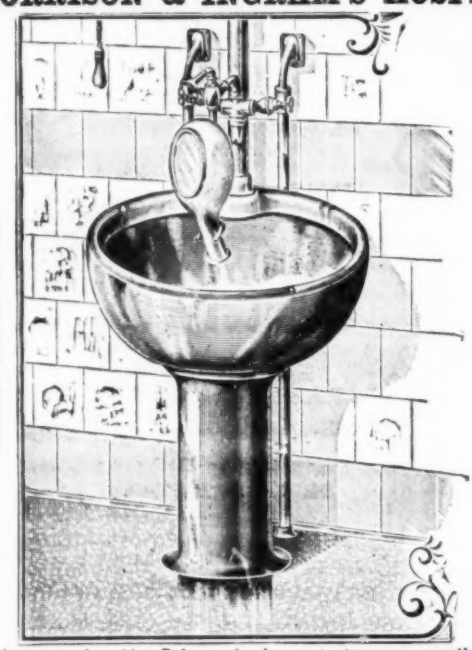
8, 9, & 10, HATTON GARDEN, LONDON, E.C.

MORRISON & INGRAM'S HOSPITAL SANITARY APPLIANCES.



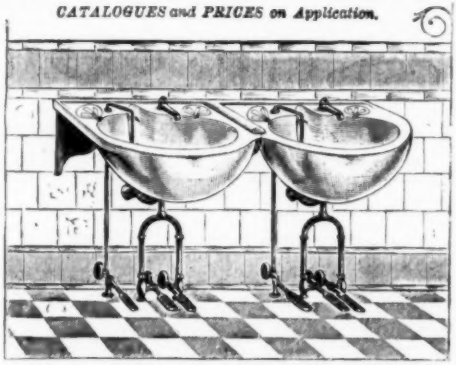
NEW PATENT BED-PAN and URINAL WASHING APPARATUS and PEDESTAL FLUSHING RIM SLOPHOPPER.

This system of washing Bed-pans, &c., is a great advance upon anything in the market. It is simple, cleanly, and inoffensive. In the act of washing the hands need not touch the pan. It is only necessary to turn round revolving branch to see that the pan is perfectly cleansed before lifting it off the spray hook.

NUMEROUS NEW AND IMPROVED DESIGNS IN

SINKS, LAVATORIES, BATHS, AND CLOSETS.

CATALOGUES and PRICES on Application.



PATENT ANTISEPTIC LAVATORIES with TREADLE ARRANGEMENT, for Operating Theatres, &c., &c.

These Lavatories afford a large bowl, and being simple and accurately designed, amply satisfy the recognised need for such appliances.

AGENTS:—London: S. MAW, SONS, & THOMPSON, 7 to 12, Aldersgate-street. Dublin: T. W. LITTLE, Harcourt-street, Belfast: R. PATTERSON & Co., 50, High-street. Rotterdam: H. S. STOCKVIS & ZONEN.

MORRISON, INGRAM & CO.,
LIMITED,
Manufacturers, MANCHESTER.

A SUITABLE PRESENT FOR A MEDICAL PRACTITIONER.

ONE OF

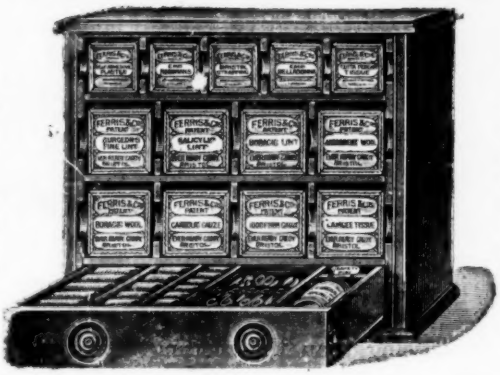
FERRIS & CO.'S "EVER-READY" CABINETS,

Fitted with their Patent

"EVER-READY" CADDIES AND DRESSINGS.

Illustration shows "M" (medium size) Cabinet, fitted complete with Dressings, Plasters, Instruments, &c.

The Cabinets are made in best polished mahogany, well finished, and are a handsome addition to any Surgery or Consulting Room.



Our List comprises over 140 varieties of Surgical Dressings, and a Cabinet can be fitted up with almost any assortment desired. If the selection is left to us we fit the Cabinets with an assortment of LINTS, WOOLS, GAUZES, PROTECTIVES, PLASTERS, &c., such as our experience has taught us are most generally required.

THE PRINCIPAL SIZES STOCKED ARE AS FOLLOWS:—

	PRICE, fitted with our regular selection of Dressings, but with Bandages only in the drawer.
"L" (largest size) Cabinet, size 19″ × 20″ × 10½″, holding eighteen Caddies	£5 0 0
"M" (medium size) Cabinet, as shown in illustration above, size 19″ × 16¾″ × 10½″, holding thirteen Caddies... ...	£3 18 0
"D" (smallest size) Cabinet, size 15¾″ × 16½″ × 10½″, holding ten Caddies	£3 8 0

If the Drawer is fitted with a Set of Dressing Instruments, Ligatures, Needles, Sponges, Tourniquet, &c., as well as Bandages, the price is 29s. extra.

The above prices include packing; if cash is sent with order the Cabinet will be sent carriage paid to any railway station in the United Kingdom.

"The Doctor is exceedingly pleased with the Cabinet and the Caddies, his remark being it was just what he wanted and what ought to be in every consulting room.'

"I never experienced until now what it was to have comfort in dressing surgical cases at home.
"——, M.D., B.Sc., C.M.Edin."

FULL DESCRIPTIVE PRICE LIST ON APPLICATION.

FERRIS & CO., Bristol, Patentees & Sole Manufacturers.

93

THERMOGENE is a medicated Cotton Wool with a base of Capsicum frutescens.

Without other advertising than the sending of samples to doctors **THERMOGENE** has rapidly obtained a prominent position in the therapeutics of France and Belgium, where it has secured an unparalleled success both among the public and the profession. The cause is that blistering preparations, thapsia or croton oil plasters, mustard plasters and painting with iodine, are revulsives, the action of which cannot be prolonged without fear of more or less serious cutaneous disorders.

By **THERMOGENE** therapeutic science has been enriched by a continuously-acting revulsive, which can be applied for an indefinite time without causing the patient any inconvenience or impediment in his habitual occupations.

THERMOGENE will be indicated in chest complaints and in all cases of rheumatism; it also acts marvellously in cases of dull and constant pains, as, for instance, lumbago, hepatic colic, neuralgia, toothache, stitches in the side, stiff neck, arthritis, etc.

THERMOGENE presents the following advantages over all other similar products:

1st. It does not corrode the skin, so that in contra-distinction to tincture of iodine, blistering preparations, croton oil, etc., its action can be prolonged indefinitely.

2nd. It does not contain any injurious or poisonous substance, so that it is suitable for general use indiscriminately, for children, women, or the aged.

We shall have much pleasure in sending a Sample Packet free to any Doctor on receipt of a request.

FASSETT & JOHNSON, 31, & 32, Snow Hill, London, E.C.

Sole Depôt for Great Britain and Colonies.

94

Trade Mark.

53 HIGHEST AWARDS OVER ALL COMPETITORS.

Quality is of first importance.

Trade Mark.

SEABURY & JOHNSON

ORIGINAL MANUFACTURERS OF

Pharmacopœial & Surgical Plasters,

IN RUBBER COMBINATION.

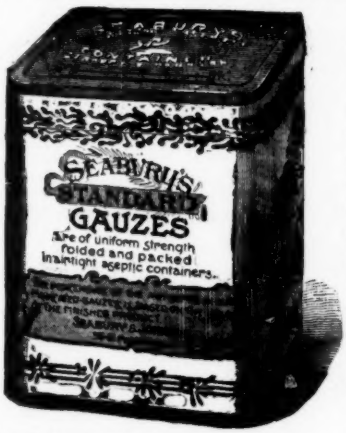
ANTISEPTIC DRESSINGS and ABSORBENTS, &c.

Seabury's "Standard" Gauzes.

ABSORBENT. MEDICATED. DRY OR MOIST.

In Patent Air-tight Aseptic Containers, 1, 5, and 25 yards; also in 100 yard rolls, 36 in. wide.

AS SUPPLIED TO THE LEADING SURGEONS WHO ARE ASSISTING THE ARMY MEDICAL STAFF IN THE SOUTH AFRICAN CAMPAIGN, AND TO THE HOSPITAL SHIPS "PRINCESS OF WALES" AND "MAINE."



SEABURY'S GAUZES are prepared with absorbent gauzes manufactured expressly for the purpose; every precaution is taken to insure aseptic conditions throughout the process of manufacture and putting up, they are thoroughly impregnated with the percentage of medication stated upon the label, so that by taking a given weight of gauze, the surgeon may know exactly the quantity of antiseptic he is using. To accomplish this it is necessary to use a larger percentage of antiseptic in the solution than is indicated in the dry product, and as **SEABURY & JOHNSON** are the only manufacturers who have adopted this method, their Gauzes call for and readily command a higher price than that quoted by others. This is specially important in the case of Iodoform Gauze.

The medication in all SEABURY'S Gauzes is based upon the weight of the finished product.

Absorbent, plain bleached
Alembroth (Sal Alembroth, 1%)
Aristol, 5%
Benzonated, 5%
***Borated, 10%**
***Carbolated, 5% Seabury's Absorbent**

***Corrosive Sub., 1 to 1,000**
* " " 1 to 2,000
Eucalyptol, 5%
"Hydronaphthol," 2½%
***Iodoform, 5%**
* " 10%

***Iodoform, 20%**
* " 30%
Mercuro-Zinc Cyanide, 3%, Lister's
Mercury Biniodide, 1 to 1,000
Salicylated, 5%

Those marked * also supplied MOIST, in Patent AIR-TIGHT Container, same price as Dry.

DETAILED CATALOGUE AND PRICE LIST ON APPLICATION.

SOLE DEPOT FOR GREAT BRITAIN AND COLONIES—

FASSETT & JOHNSON, 31 & 32 Snow Hill, LONDON, E.C.

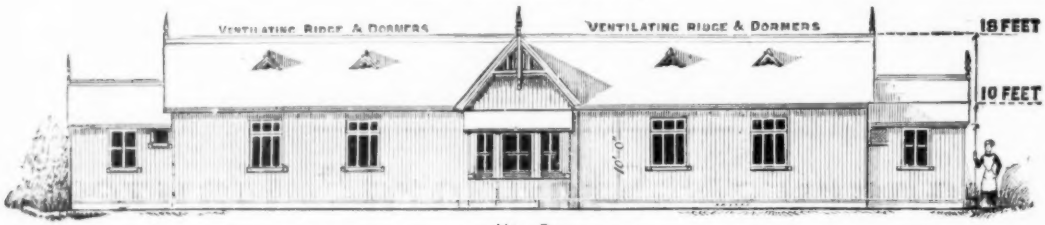
HUMPHREYS'

(Established 1834.) (GOLD MEDALS.)

IRON HOSPITALS,

KNIGHTSBRIDGE, HYDE PARK, LONDON, S.W.

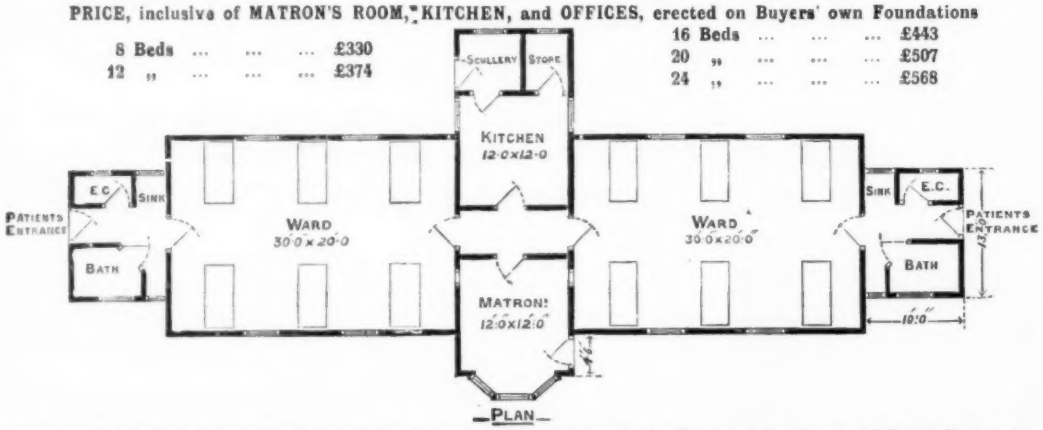
DESIGNS (POST FREE.)



No. 9.

PRICE, inclusive of MATRON'S ROOM, KITCHEN, and OFFICES, erected on Buyers' own Foundations

8 Beds	... ...	£330	
12 ,,	... ...	£374	
16 Beds	... ...	£443	
20 ,,	... ...	£507	
24 ,,	... ...	£568	



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HUMPHREYS' COMPLETE HOSPITAL (awarded Certificate of the Sanitary Institute of Great Britain).

Our Hospitals have been approved and erected at:—

Abingdon, Accrington, Ashby-de-la-Zouch, Asylums Board (London), Barking, Bedford, Bedminster, Biddulph, Bideford, Bishop's Castle, Blackpool, Blyth, Bolton, Bootle, Bournemouth, Bradford, Bridgend, Bridgnorth, Brighton, Buckingham, Bury, Calverley, Canterbury, Cardiff, Castleford, Chester, Chester-le-Street, Chesterfield, Cleckheaton, Clonmel, Coalville, Cork, Crediton, Croydon, Curragh Camp, Dartford, Darenth, Devonport, Doncaster, Dover, Dublin, Durham, Earsdon, Eastbourne, East Ham, Edinburgh, Enfield, Eston, Fort William, Fulham, Great Yarmouth, Gloucester, Guildford, Guisborough, Halifax, Hants Reformatory, Hardingstone, Harrogate, Hereford, Hertford, Hexham, Homerton, Houghton-le-Spring, Hull, Ilkley, Ipswich, Jarrow, Keighley, Kendal, Keynsham, Kidderminster, Kingsholm, Leeds, Leicester, Leigh, Liverpool, Liversedge and Mirfield, Llandrindod Wells, London, Lowestoft, Ludlow, Luton, Maidenhead, Malvern, Manchester, Mansfield, Market Harboro', Melton Mowbray, New Romney, Newport, Nottingham, Oldham, Ossett, Otley, Oxford, Pembroke Dock, Portland, Queensferry, Rawtenstall, Redcar, Redhill, Rushden, Salford, Scarborough, Sedgefield, Seghill, Shanklin, Slough, South Shields, Southampton, Stamford, Stapleton, Stockton, Stockwell, Stone, South Stoneham, St. Albans, Stratford-on-Avon, Sulina (Black Sea), Swansea, Tadcaster, Taunton, Tonbridge, Tottenham, Treviso (Italy), Tynemouth, Uppingham, Wakefield, Warwick, Waterford, Watford, Wellingborough, Welwyn Union, West Ham, Weston-super-Mare, Whatstandwell, Whitwood, Wigan, Willesden, Wimbledon, Windsor, Wolverhampton, Worcester.

N.B.—Many Corporations have sent repeat orders.

HUMPHREYS, LIMITED, are the owners of several valuable patents for the *rapid construction* of Portable Buildings (erected in 5 to 10 days), many thousands having been supplied by this firm to all parts of the world, and for the Government, Corporations, and Medical Officers of Health mentioned above

Qualities and Advantages claimed for Humphreys' Hospitals:—Durability, Stability, Simplicity, Facility of Erection and Removal, Cleansing and Disinfection, and are fitted for all climates. These Hospitals are wood lined, varnished, with felt under all the galvanised iron.

Telephone, 881, Kensington. Telegraphic Address: "HUMPHREYS, KNIGHTSBRIDGE, LONDON."

THE "LAWSON TAIT" SPRING BEDSTEADS.

"DOMINION" WIRE SPRING MATTRESS

On POLISHED HARD WOOD FRAME.

"CLIPOID" SPRING ATTACHMENT.

The Wire Spring Bottom is exactly the same as supplied to the Royal Palaces of Windsor and Osborne, British and Colonial Governments, and leading Institutions.

Both the "DOMINION" MATTRESS and "CLIPOID" ATTACHMENTS may be fitted to any existing BEDSTEADS or COTS in place of Laths and Stretcher Bars.

The "CLIPOID" ATTACHMENT has been INTRODUCED FOR THE PURPOSE OF EASILY CONVERTING (without removal of the Bedstead) Lath or worn-out Woven Wire Spring Bedsteads to the "Lawson Tait" principle.

Each Spring is tempered and tested to 60-lbs. There are 40 in a 3-ft. Bedstead.

TOTAL TEST, 2400-lbs.

The Strongest, and at the same time most Elastic and comfortable Spring Mesh made.

The Patent Spring Meshes on these Bedsteads are guaranteed to stand this test (780 lbs.) without injury.

Fitted with the Patent "VICTEX CASTORS," which are guaranteed not to break or come off in use.

"VICTEX" CASTORS.

The Manufacturers Guarantee to Replace Free of Charge any Spring Mesh of these Bedsteads sagging or giving way in use for 14 years.

SELECTED TESTIMONIALS.

AFTER TWELVE YEARS' WEAR.

"7, THE CRESCENT, BIRMINGHAM,
"August 30th, 1894.

"It is now more than twelve years since you carried out my suggestions for an ideal Hospital Bedstead, so constructed that constant wear by the heaviest patient would never cause it to 'sag' in the middle. I have had a large number of them in constant use ever since, and not one has required alteration or repair, nor does one of them appear the worse for wear. They have given me perfect satisfaction in every way. "Yours truly,
"L. T., F.R.C.S."

Dr. W. T. O'R., Inspector of Asylums and Hospitals for the Government of Ontario.

"TORONTO, CANADA.

GENTLEMEN,—

"We have in our different Asylums over ten hundred of your combined Iron Bedsteads and Spring Mattresses, and I have much pleasure in saying that they are quite the best combination for use in public institutions I have seen.

"Your obedient servant,
"W. T. O'R., Inspector."

SPECIALLY ADAPTED FOR HOSPITALS, INSANE ASYLUMS, &c.

Illustrated Catalogue of Designs for all purposes, also a List of Institutions supplied, with Testimonials received, sent gratis on application.

GEO. GALE & SONS, Ltd., Dominion Works, Birmingham.

Also LONDON and PARIS.

97

TWYFORDS, LTD.,

CLIFFE VALE POTTERIES, HANLEY.

FOR SANITARY SPECIALITIES

SUITABLE FOR

Private Houses, Hotels, Clubs, Public Institutions, Hospitals, Infirmaries, Asylums, Workhouses, Schools, &c. &c.,

CONSULT

TWYFORDS' 1899 CATALOGUE.

Complete Combinations in Earthenware, Vitrina Ware and Enamelled Fire Clay.

TWYFORD'S, Ltd., "Cliffe Vale" Potteries, HANLEY.

Show Rooms — 16, SOUTHAMPTON ROW, HOLBORN, LONDON; 69, MOSLEY ST., MANCHESTER; 95, BATH ST., GLASGOW; 136, EDMUND STREET, BIRMINGHAM.

Price 4/- a Bottle, post paid. About 12 Wineglassfuls.

HEALTH AND STRENGTH.

ONE OF THE BEST TONICS NOW BEFORE THE PUBLIC IS

ARMBRECHT'S

COCA (LEAF) WINE.

ARMBRECHT
Coca Wine
DUKE STREET,
GROSVENOR SQUARE,
London.
COCA WINE
ARMBRECHT
COCA WINE
(MEDIUM)
A powerful nerve stimulant. Restores the functions of the digestive organs, strengthens the mental and physical powers, assuages thirst. Relieves the distress and drowsiness of nervous debility. Gives rapid benefit in cases of opium and morphia habit.
The North Am. Med. Chir. Review, March 1881, has the following:—In large quantities it is said that this drug produces a general exaltation of the sensitory and nervous systems—imparting increased vigour to the muscles as well as to the intellect, with an indescribable feeling of satisfaction.
In small doses it increases appetite and promotes digestion. In cases of sleeplessness from exhaustion and fatigue it is invaluable, producing a sound and refreshing sleep without the distressing sensations so common after OPIATES, BROMIDES, and EXTRACT OF CHLORAL.
One wine-glassful is equal to one dram of the tincture.
DOSE, AS A TONIC.—One wine-glassful before or with each meal. Children, half or quarter of a wine-glassful.
FOR SLEEPLESSNESS FROM NERVOUS EXHAUSTION.—Place a wine-glassful at the bedside, and take a sip about every half hour until asleep, or take the whole at one dose, and repeat during the night if wakeful.
AGENTS,
ARMBRECHT, NELSON & CO.,
Continental Pharmacy. Established 1868.
Telegraphic Address "ARMBRECHT," LONDON.
DUKE STREET,
GROSVENOR SQUARE, LONDON, W.

Price 4/- a Bottle, post paid. About 12 Wineglassfuls.

Made from the best Peruvian Coca Leaves, which have a wide repute as a Restorative Tonic against

NERVOUSNESS,
SLEEPLESSNESS,
INDIGESTION,

AND

GENERAL DEBILITY,

INASMUCH AS IT

INVIGORATES THE WHOLE NERVOUS SYSTEM

AND

Restores the Wasted Energies and Powers of Life

CAUSED BY

OVERWORK, WORRY, INDIGESTION,
DYSPEPSIA, RHEUMATISM,
NEURALGIA, &c.

71 & 73, DUKE STREET,
GROSVENOR SQUARE, W.

PROFESSIONAL PRICE 38/- PER DOZEN.

99

THE BARIUM NATURAL MINERAL WATERS OF LLANGAMMARCH.

Analyses by THE LANCET, Nov. 24th, 1894.

	No. 1.		No. 2.
CHLORIDE OF BARIUM ...	6·749	.....	6·498
Chloride of sodium	186·200	.....	185·900
Chloride of calcium...	85·160	.....	85·470
Chloride of magnesium	20·100	.....	20·315
Chloride of lithium	0·847	.....	0·910
Chloride of ammonium	0·252	.....	0·252
Alumina and silica	3·340	.....	3·100
Bromine	Distinct traces	.....	Distinct traces
Total mineral matters in grains per gallon ...	302·658	.....	302·447

"Constant in composition .....Safe.....Organically pure."—THE LANCET.

Analysis by Dr. DUPRÉ, August, 1883.

CHLORIDE OF BARIUM	6·26
Chloride of Sodium	189·66
Chloride of Calcium	84·56
Chloride of Magnesium	24·31
Carbonate of Calcium	2·80
Silica	1·40
...	308·89 grains per gallon.

"Barium, a rare constituent of mineral waters."
—Dr. DUPRÉ.

LLANGAMMARCH BARIUM WATERS in HEART DISEASE.
(See THE LANCET, Nov. 24th, Dec. 1st, 1894, Jan. 4th, 1896.)

LLANGAMMARCH BARIUM WATERS in GLANDULAR ENLARGEMENT.
(A London Physician.)

LLANGAMMARCH BARIUM WATERS in KIDNEY COMPLAINTS, GOUT, RHEUMATISM.
(See Clinical Note in THE LANCET, March 25th, 1899.)

LLANGAMMARCH BARIUM WATERS as a POWERFUL DIURETIC & URIC ACID SOLVENT.
(Vide same Clinical Note.)

LLANGAMMARCH BARIUM WATERS — ELIMINATE URIC ACID FROM THE SYSTEM.

THE PUMP HOUSE, LAKE HOTEL, & BATHS,

LLANGAMMARCH WELLS, CENTRAL WALES.

Telegraphic Address—"BARIUM, LLANGAMMARCH WELLS." [For Terms apply to MANAGERESS.

(CENTRAL WALES.) **BARIUM SPRINGS.** (ALTITUDE 600 ft.)

THIS FIRST-CLASS HOTEL, STANDING IN ITS OWN ORNAMENTAL GROUNDS, is situated on the slope of the Eppynt Hills, looking down one of the most beautiful valleys of Wales. All the rooms have been furnished with every regard to the comfort of visitors; special attention has also been given to the sanitary drainage and water supply, which has been carried out on the most modern principles. There is splendid Salmon and Trout Fishing to be obtained in the River Irfon, over two miles of this charming tributary of the Wye flowing through the hotel grounds and is reserved for visitors, who also have the privilege of shooting over several thousand acres of Mountain and Moorland, while the picturesque lake affords every facility for boating. Golf Links, Tennis Courts, Croquet and Bowling Greens. Every comfort and convenience provided for patients undergoing A COURSE OF THE WATERS. Pure and abundant water-supply, efficient sanitation. The waters of LLANGAMMARCH give the same benefits and relief in CHRONIC DISEASES OF THE HEART afforded by the celebrated springs of NAUHEIM and KREUZNACH. A physician is in residence close to the Spa during BOTH SUMMER AND WINTER who has special experience of the treatment of Gout, Rheumatism, and Heart Affections, and is practically acquainted with the methods of Dr. Schott of NAUHEIM. A trained masseuse is also in attendance. One portion of the estate (over 600 acres) is suitable for residential purposes, and a water-tower into which pure spring water flows by gravitation, direct from the eye of the mountain, has been erected which will afford an unlimited supply for the whole estate. 6 hours from Euston. THROUGH CARRIAGES TWICE DAILY UP AND DOWN. RETURN WEEK-END TICKETS, FRIDAY TILL TUESDAY, AT SINGLE FARE.

THE MEDICAL LITERATURE OF THE LLANGAMMARCH MINERAL WATERS,

With excerpts from THE LANCET, BRITISH MEDICAL JOURNAL, MEDICAL ANNUAL, &c., together with a list of the great number of distinguished Medical Men who have visited the Spa, sent on application.

LLANGAMMARCH AS A HEALTH RESORT, SUMMER AND WINTER.

THE METEOROLOGY OF LLANGAMMARCH (see Official Meteorological Returns) renders it an EXCELLENT WINTER RESORT.

"LLANGAMMARCH enjoys the purest air and the maximum life-giving properties of the sun."—(See THE LANCET, July 30th, 1898.)

THE LLANGAMMARCH BARIUM WATERS are supplied both STILL and AERATED by the LONDON AGENTS—

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ST. RAPHAËL
TANNIN WINE

The Original Tonic Wine,
Prepared after the recipe of Profs. Pasteur and Bouchardat.

Strength-giving Tonic and Reconstituting Wine,
Invaluable in all cases of Anæmia,
Gastric Debility, and of Delicate Women and Children.

THE ONLY St. RAPHAËL WINE
PRESCRIBED IN THE FRENCH HOSPITALS FOR 35 YEARS.

☞ Each bottle should bear a blue capsule with the words "ST. RAPHAËL" in white and the name of E. GALLAIS & Co., Limited, the Sole Importers.

E. GALLAIS & CO., LTD.,
90, PICCADILLY, LONDON, W.

101

The Tasteless and Best Natural Aperient.

ÆSCULAP

"Contains the Sulphates of Magnesium and Sodium in unusually large quantities. It is an admirable aperient water."—THE LANCET.

"ÆSCULAP is the clearest and purest of all the Hungarian Aperient Waters."—THE HOSPITAL.

"Of uniform strength and free from organic impurity."—EDINBURGH MEDICAL JOURNAL.

"A valuable remedial agent in stomach and intestinal affections."—GLASGOW MEDICAL JOURNAL.

"It is an efficient aperient."—DUBLIN JOURNAL OF MEDICAL SCIENCE.

"It possesses the decided advantage of being less unpleasant to take than many other bitter waters, as well as being free from any organic impurity."—THE MEDICAL PRESS.

Analysis of Professor JOHANN MOLNAR,

Government Analyst, BUDAPEST.

SULPHATE OF POTASSIUM	0·104
SULPHATE OF AMMONIA...	0·061
SULPHATE OF SODIUM	139·063
SULPHATE OF MAGNESIUM	172·806
SULPHATE OF CALCIUM	20·788
CHLORIDE OF SODIUM	29·047
CARBONATE OF SODIUM	9·989
CARBONATE OF IRON	0·097
CARBONATE OF MANGANESE	0·429
ALUMINA	0·349
SILICIC ACID	0·093
TOTAL	372·924

ÆSCULAP

May be obtained from all Chemists, Druggists, Shippers, and Mineral Water Dealers.

The Bottling and Management of the Æsculap Springs, Budapest, are carried on directly under English supervision.

The ÆSCULAP BITTER WATER CO., Limited, London & Budapest.

MARTELL'S THREE STAR BRANDY.

THE LANCET, 22nd July, 1899, says :—

"This brandy shows excellent features on analysis, while the evidence of taste is distinctly in favour of the description that it is an old matured grape spirit. It possesses that etherial fragrance due to the peculiar ethers of wine. Our analysis yielded the following results :—Alcohol, by weight 41·00 per cent., by volume 48·43 per cent., equal to proof spirit 84·87 per cent.; acidity expressed as acetic acid, 0·033 per cent.; extractives 0·69 per cent.; mineral matter, *nil;* alcohol in volatile ethers, two grammes per 10 litres. The flavour is soft and mellow and the aroma is characteristic of a sound and mature wine-derived spirit. In view of these analytical and general evidences this brandy may be described as particularly suitable for medicinal purposes."

THE MEDICAL PRESS, 9th August, 1899, says :—

"We have carefully examined a sample of this well-known spirit by the usual tests, and the results obtained by analysis fully warrant our recommending it for medical and dietetic purposes. The analysis gave the following figures :—

Alcohol (as proof spirit)	86·5 per cent.
Extractives	·68 ,, ,,
Ash	Nil.
Acidity	·036 ,, ,,
Ethers (as alcohol)	·028 ,, ,,

"We analysed this product some ten or more years ago, and finding that it still maintains its exceptionally high character, we are consequently in a position to speak highly of it as a genuine old brandy made from wine, well matured, and free from all compounds which might detract from its value as a medicinal agent."

102

THE NATURAL MINERAL WATERS OF (STATE SPRINGS)

VICHY

CÉLESTINS. For Diseases of the Kidneys, Gravel, Gout, Rheumatism Diabetes, &c.

GRANDE-GRILLE. For Diseases of the Liver and Biliary Organs, &c.

HÔPITAL. For Stomach Complaints.

VICHY - ÉTAT PASTILLES.
Two or three Pastilles after each meal facilitate digestion.

VICHY - ÉTAT COMPRIMÉS.
For instantaneously producing an effervescing alkaline water.

SAMPLES AND PAMPHLETS FREE TO MEMBERS OF THE MEDICAL PROFESSION ON APPLICATION.

CAUTION.—Each bottle from the STATE SPRINGS bears a neck label with the word "VICHY-ETAT" and the name of the SOLE AGENTS —

INGRAM & ROYLE, Ltd., East Paul's Wharf, 26, Upper Thames Street, E.C.,
And at LIVERPOOL and BRISTOL.

THE PASTEUR CHAMBERLAND FILTER.

The only Filter proved to afford Protection against Water-borne Disease.

This statement is made on the results officially recorded of the use of over 200,000 since 1888, which are confirmed by all Laboratory experiments A précis of the evidence will be forwarded on application.

Made to give any required supply either with or without pressure.

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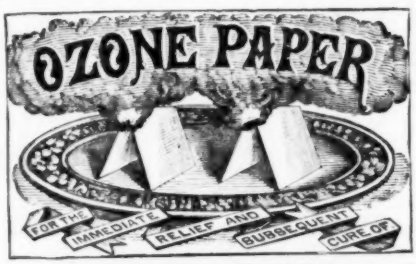

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—ANSTEY'S ODE TO JENNER. (Translation by JOHN RING, 1804.)

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—BRITISH MEDICAL JOURNAL, November 11th, 1899.

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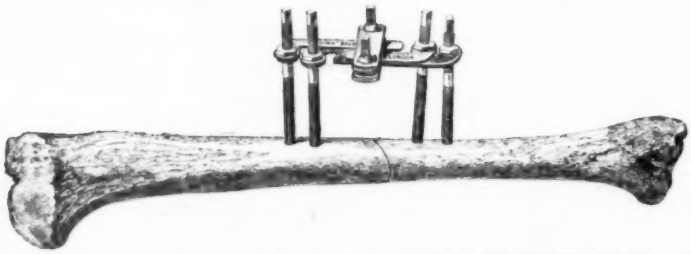
FOR USE IN

Un-united Fractures, Fractures with Mal-union, and recent fractures with tendency to displacement.

Suggested by CLAYTON PARKHILL, M.D., of Denver, Colorado.



Description taken from the ANNALS OF SURGERY, May, 1898.

The instrument shown is made in three sizes, the largest is suitable for all parts of the Femur except the Neck, the intermediate size is adapted for the Tibia and Humerus, and the smallest size for the Forearm, Fibula, Clavicle, and Patella. There is also a special form of Clamp for fractures in the Neck of the Femur.

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It is claimed for this instrument—

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2. That it is easily and accurately adjusted.
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4. That the presence of the shafts in the bone stimulates the production of osseous tissue.
5. That nothing is left in the tissue that might reduce their vitality or lead to pain and infection.
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BY

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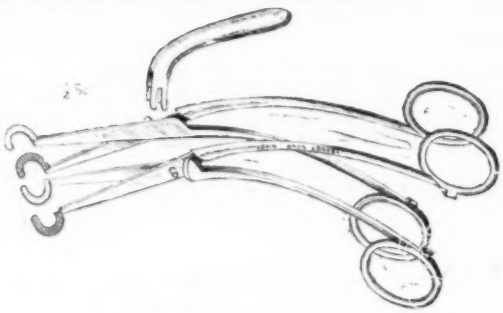

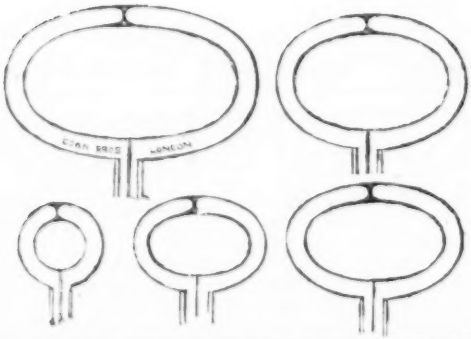

Extracted from the ANNALS OF SURGERY, March, 1899.

The necessity for rapidity and accuracy in suturing while performing the various operations for anastomosis of the intestines, as well as the simplification of the procedure, has led to the design of a forceps which presents the following characteristics—

1. It consists of two rings, introduced into the intestines to be anastomosed, and acts as a support to the parts while suturing them.
2. The forceps, being separable into two halves, can be gently withdrawn from a small aperture still unsutured, and the anastomosis is completed by adding one or two sutures.

The method offers the following advantages: First, rapidity and accuracy of suturing without leaving any foreign substance within the gut; second, an absolute control of the field of operation by means of the assistance of the handles of the forceps; third, the facility with which the forceps are applied, preventing the escape of intestinal contents during the operation.

There are five sizes of the forceps, for intestines of various calibre, as well as for the more delicate work on the gall-bladder (cholecystenterostomy).

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THREE ENTRANCE SCHOLARSHIPS will be offered for competition in September, viz.: one of £150 and one of £80, in Chemistry and Physics, with either Physiology, Botany, or Zoology at the option of candidates, for first year's students (the Medical School Committee is empowered to grant an exhibition of £20 to any unsuccessful competitor who obtains sufficient marks to qualify for a Scholarship); one of £50 after an examination in any two of the following subjects:—Anatomy, Physiology, Chemistry, for students who have completed their examinations in Anatomy, Physiology, Materia Medica and Pharmacy for a medical degree in any of the Universities of the United Kingdom and have not entered as students in any London Medical School. Copies of the examination papers of last year may be obtained on application to the Medical Secretary. Applications must be sent in not later than September 19th, with certificate of birth and of Preliminary Examination, and with a notification of the choice of optional subject. Numerous Scholarships, prizes, and medals are open to competition throughout the whole career of a student, including a Fellowship of £100 given by the Salters' Company for research in Pharmacology.

THE HOSPITAL contains 572 beds, of which about 512 are in use. It is built on the system of separate pavilions, which are connected by a covered and an open-air corridor. The Hospital and School are situated along the banks of the Thames between Westminster and Lambeth Bridges, an open-air terrace running the whole length of the buildings facing the Houses of Parliament. A Clinical Laboratory has been recently built, in which all the more difficult methods of diagnosis, bacteriological, chemical, and microscopical, are carried on under the direction of a superintendent. The Department for Out-patients has been re-arranged and now consists of a series of rooms, among which are two large well-ventilated clinical theatres provided with ample sitting accommodation, so that large numbers of students are enabled to follow closely the practice and teaching of the assistant staff. To this department there has been added during the past year a completely fitted operating room. During the twelve months ending December 31st, 1898, the number of patients admitted into the hospital amounted to 6079. In the same period, 19,971 out-patients have been treated, and in the maternity department 2474 women have been attended at their own homes. Casualties to the number of 91,424 attendances were treated during the same period.

The SCHOOL BUILDINGS, which are separated from the Hospital by a quadrangle containing a lawn tennis court for the use of the residents, comprise numerous theatres, laboratories, and class rooms, and are well adapted for the modern teaching of large bodies of students in all the subjects of the medical curriculum. A large library and reading room and a very complete museum are open to all students from 9 A.M. to 5 P.M. The new Club Premises, opened in 1894, contain a dining room, a smoking and reading room supplied with daily and illustrated weekly papers, and a gymnasium. A cloak room with lockers, and a lavatory with bath rooms are in the main school building. Students are thus able to spend the whole day at the school, all meals being obtainable at a moderate tariff, and they are further provided with facilities for exercise and recreation. A Ground of more than nine acres in extent is provided at Chiswick. It can be reached in forty minutes from the Hospital, it is admirably adapted for football, cricket, lawn tennis, and athletic sports. It is provided with a pavilion where refreshments can be obtained.

ALL HOSPITAL APPOINTMENTS are open to students without charge. A Resident Assistant Physician and a Resident Assistant Surgeon are appointed annually at a salary of £100 with board and lodging. Two Hospital Registrars, at an annual salary of £100 each, are appointed yearly. An Obstetric Tutor and Registrar is appointed each year at an annual salary of £50. The tenure of these offices may be renewed for a term not exceeding three years. Four House Physicians, two Assistant House Physicians, four House Surgeons, four Assistant House Surgeons, two Obstetric House Physicians, two Ophthalmic House Surgeons, and eight Clinical Assistants in the special departments are appointed every three months. Clinical Clerkships and Dresserships to the in- and out-patient departments are available to the number of more than 400 each year.

The Fees may be paid in one sum or by instalments. Entries may be made separately to lectures or to hospital practice. Special arrangements are made for students from the Universities and elsewhere entering in their second or subsequent years, also for dental students and for qualified practitioners.

Special Classes for the Preliminary Scientific and Intermed. M.B. Lond., for the Oxford and Cambridge Examinations, and for the Primary F.R.C.S., are held throughout the year.

A register of approved Lodgings is kept by the Medical Secretary, who has a list of local medical practitioners, clergymen, and others who receive students into their houses.

For the Prospectus of the school, containing full particulars as to fees, course of study advised, &c., and for any information as to entering the Medical Profession, apply personally, or by letter, to Mr. Rendle, the Medical Secretary.

H. P. HAWKINS, M.A., M.D. Oxon., Dean.

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APPLIED ANATOMY (MEDICAL AND SURGICAL): PHYSICAL DIAGNOSIS... ... ... Tuesdays and Thursdays, 6 P.M., commencing Tuesday, Jan. 16th. Fee £2 2s.	DR. SEYMOUR TAYLOR, MR. JAS. CANTLIE.
CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. Fridays, 2 to 3 P.M. ... ... Commences Friday, Jan. 19th. Fee £1 1s.	DR. HARRY CAMPBELL.
PRACTICAL APPLICATION OF RÖNTGEN RAYS. Thursdays, 3 P.M. ... ... Commences Thursday, Jan. 18th. Fee £2 2s.	DR. HARRISON LOW.
PRACTICAL OTOLOGY. Mondays, 5 to 7 P.M. ... ... Commences Monday, Jan. 15th. Fee £2 2s.	DR. DUNDAS GRANT.
PRACTICAL RHINOLOGY AND LARYNGOLOGY. Wednesdays, 5 to 7 P.M. ... ... Commences Wednesday, Jan. 17th. Fee £2 2s.	DR. STCLAIR THOMSON.
PRACTICAL OPHTHALMOLOGY, the USE of the OPHTHALMOSCOPE, and REFRACTION. Fridays, 5 to 7 P.M. Commences Friday, Jan. 19th. Fee £2 2s.	MR. VERNON CARGILL.

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The Annual Subscription of all Subscribers enrolled after Jan. 1st, 1900, is Two Guineas.

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Affords a Theoretical and Practical Training, and qualifies the sons of gentlemen for appointments in Mechanical and Electrical Engineering. After the preliminary training in theory at the Institution, students go through a practical course—First in Mechanical Engineering Works, and subsequently in Electrical Works, the Institution being affiliated with more than FIFTY concerns for this purpose. They are thus brought directly into association with prominent Companies and Firms, and secure an introduction to the profession under the most favourable auspices. APPOINTMENTS HAVE BEEN SECURED FOR OVER 80 PER CENT. OF THE STUDENTS who have completed their course since the foundation of the Institution, and applications continue to be received for competent men.

The New Term begins January 10th. Prospectus on application.

King's College, London, and King's COLLEGE HOSPITAL.

SCHOLARSHIPS AND PRIZES.

At Entrance £500 is awarded annually: of which
£150 is for subjects of Divinity, Classics and Mathematics,
£220 ,, ,, Science and Mathematics,
£130 ,, ,, Science,
Two Scholarships are exclusively open to University Candidates.

In addition to the above Entrance Scholarships, a special feature of the Curriculum is the large sum expended annually in Scholarships and Prizes, and which are open to those who do not obtain Scholarships at entrance: £300 is thus awarded annually.

Over and above the usual course of instruction, as at other Hospitals, for the Qualifying Diploma of the Conjoint Board and British Universities, special Classes have been established for the Matriculation Examination of London University, for the Primary F.R.C.S. (Eng.), and for the Final F.R.C.S. (Eng.), and higher Surgical Degrees of the various Universities. Tutorial Classes in Medicine, Surgery and Obstetrics supplement the clinical teaching and lectures in these subjects.

At the College special Laboratories of Neuropathology, Bacteriology and Surgical Pathology are available for study and research.

The Special Departments of the Hospital afford a unique opportunity of instruction in Diseases of the Eye, Ear, Throat and Skin, in Diseases of Women and of Children, and in Dental Surgery.

The Dean may be interviewed daily during term-time between 12 and 1 P.M. at the College.

The Prospectus and further information may be obtained by letter from the Secretary, King's College, Strand, W.C.

The Dental Hospital of London

MEDICAL SCHOOL, LEICESTER SQUARE.

LECTURES.

Dental Anatomy and Physiology (Human and Comparative)—Charles S. Tomes, F.R.S., M.A. Oxon., F.R.C.S., L.D.S., on Tuesdays and Thursdays at 5 P.M. (Summer). (Demonstrator—A. Hopewell Smith, L.R.C.P., M.R.C.S., L.D.S.).

Dental Surgery and Pathology—William Hern, M.R.C.S., L.D.S., on Tuesdays and Fridays at 8 A.M. (Summer.) (Demonstrator—R. Herschell, L.D.S.)

Mechanical Dentistry—E. Lloyd Williams, L.R.C.P., M.R.C.S., L.D.S., L.S.A., on Wednesdays at 5.30 P.M. (Winter.)

Metallurgy in its Application to Dental Purposes—Dr. Forster Morley, M.A., F.I.C., F.C.S., on Thursdays at 5 P.M. (Winter.) (Demonstrator—Percy Richards, F.I.C., F.C.S.)

The Hospital is open both morning and afternoon.

During the Sessions the Surgeons of the day will give Demonstrations at stated hours.

The Medical Tutor holds classes before each examination for the L.D.S.

The House Surgeons attend daily while the Hospital is open.

The Saunders and Walker Scholarships, of £20 per annum each, and Prizes are open for competition.

Fee for two years' Hospital Practice required by the Curriculum, including Lectures, £50 in one payment, or 50 guineas in two yearly instalments. The curriculum requires two years to be passed at a General Hospital. The fee for this is about £55. *Both Hospitals can be attended simultaneously.*

The Fee for three years' tuition in Mechanical Dentistry is 150 guineas.

The Calendar may be obtained on application to the Dean, who attends at the Hospital on Wednesday Mornings from 10.30 till 12 throughout the year.

MORTON SMALE, Dean.

Speech for the Deaf.—The Asso-

CIATION for the ORAL INSTRUCTION of the DEAF and DUMB, 11, Fitzroy Square, W., educates children upon the pure Oral or German system (by which they are taught to *speak* and to understand what others *say* by means of *lip-reading*), and trains teachers on that system, both for public institutions and private families.

Members of the medical profession are invited to visit the School for Children and Training College for Teachers of the Association any time by appointment. For particulars apply to the Director, WILLIAM VAN PRAAGH, Esq., 11, Fitzroy Square, W.

Charing Cross Hospital Medical SCHOOL.

The Livingstone Scholarship (100 guineas), the Huxley Scholarship (55 guineas), and six other Entrance Scholarships (total value £550), are awarded annually.

Two Scholarships, of the value of 60 guineas each, are reserved for Students of Oxford, Cambridge, or London Universities.

FEES.—For the five years' curriculum of study required by the various examining bodies and for Hospital Practice, 110 guineas in one sum, or 121 guineas in five instalments.

The composition fee for sons of registered medical practitioners is 100 guineas, and the fee by instalments 110 guineas in five payments.

The composition fee for Dental Students is 54 guineas, or 60 guineas payable in two instalments of 30 guineas each.

A proportionate reduction of the above fees is made to students who have completed part of the curriculum elsewhere.

CHARING CROSS HOSPITAL is within three minutes' walk of the Dental Hospital of London, and the hours of Lectures are arranged to suit the convenience of both General and Dental Students.

The Hospital and School are situated within two minutes of both Charing Cross Stations, and the Athletic Ground at Eltham can be reached within half an hour from Charing Cross.

The SCHOOL PROSPECTUS, containing full information concerning the classes, prizes, and all other arrangements connected with the Medical School, will be sent on application to the Dean, Chandos Street, Strand, W.C.

H. MONTAGUE MURRAY, Dean

Royal London Ophthalmic Hospital, City-road, E.C.

Course of Instruction on the following subjects will be given at the Hospital, commencing on Tuesday, January 9th, 1900.

1. THE USE OF THE OPHTHALMOSCOPE.—By Messrs. Gunn, Silcock, Lawford, Morton, Treacher Collins, and Holmes Spicer, at 7.30 P.M., commencing on Tuesday, January 9th, and continuing on the following dates:—January 16th, 18th, 23rd, 30th, February 1st, 6th, 8th, 13th, 15th, 20th, and 22nd.

2. ERRORS OF REFRACTION.—By Mr. Lang, at 8 P.M., commencing on Monday, January 15th, and continuing on January 22nd and 29th, February 5th and 12th.

3. EXTERNAL DISEASES OF THE EYE.—By Messrs. Morton and Holmes Spicer, at 1 P.M., commencing on Friday, January 12th, and continuing on January 19th, 26th, 31st, February 7th, 14th, and 21st.

4. SURGICAL ANATOMY OF THE EYE.—By Mr. Treacher Collins, at 8 P.M., commencing on Friday, February 2nd, and continuing on the 9th and 16th.

Fee for the Ophthalmoscope Class	Two guineas.
Refraction	One guinea.
External Diseases	One guinea.
Surgical Anatomy	One guinea.

Perpetual Students of the Hospital are admitted free. Further particulars may be had by application to the Secretary at the Hospital.

DIPLOMA IN PUBLIC HEALTH. University College, London.

Professor W. H. CORFIELD, M.A., M.D., F.R.C.P., Med. Off. Health St. George's, Hanover-square; Assistant Professor HENRY KENWOOD, M.B., D.P.H., F.C.S., Med. Off. Health and Public Analyst, Stoke Newington and Finchley.

The New Hygienic Laboratory is open daily for practical instruction in Hygienic Analysis.

Demonstrations of Sanitary Appliances and Excursions to places of Public Health interest are undertaken by the Professor each week.

Special arrangements are made to suit the convenience of those engaged in practice.

A Special Course of Bacteriological Instruction for Public Health Students is given by CHRISTOPHER CHILDS, M.A., M.D., D.P.H.

Those intending to join the classes are invited to call at the Laboratory between the hours of 2 and 4 P.M., or the prospectus and further information may be obtained on application to

J. M. HORSBURGH, M.A., Secretary.

The Middlesex Hospital Medical SCHOOL.

The WINTER SESSION, 1899-1900, will be resumed on TUESDAY, Jan. 2nd.

Full opportunities for study are offered to students preparing for any of the examinations in medicine and surgery in the United Kingdom.

Special facilities are offered for clinical and research work, and for holding hospital appointments.

Students entering in January or May are eligible to compete for the Entrance Scholarships in the following September.

The new laboratories and class rooms for physiology, chemistry, biology, pathology, bacteriology, with all modern improvements, as well as a new and larger dissecting room, are now in regular use.

Composition fee for general students for whole curriculum 135 guineas, or by instalments; for university students who have completed anatomy and physiology, 70 guineas; for dental students 54 guineas.

Prospectuses with full particulars of scholarships, &c., will be forwarded on application to W. PASTEUR, M.D., Dean.

The Middlesex Hospital Medical SCHOOL.

DEPARTMENT OF PUBLIC HEALTH AND BACTERIOLOGY.

A Six Months' Course of Laboratory Instruction on Public Health will commence in the first week of January.

Bacteriology by A. G. R. Foulerton, F.R.C.S., D.P.H. F. G. Thomson, M.B., Demonstrator.

Chemistry and Physics by the Lecturer on Chemistry.

The Course includes six months' out-door work with a metropolitan medical officer of health. Fee, £21.

For further particulars apply to W. Pasteur, M.D., Dean.

POST-GRADUATE COURSE.

Charing Cross Hospital.

The second WINTER COURSE of Clinical Lectures and Practical Demonstrations will commence on Thursday, January 11th next, and will be conducted by the following Members of the Staff:—

Jan.	11th	Dr. Green	Medical Cases.
,,	18th	Mr. Boyd	Surgical Cases.
,,	25th	Dr. Bruce	Medical Cases.
Feb.	1st	Dr. Eden	Gynæcological.
,,	8th	Mr. Waterhouse	Surgical Cases.
,,	15th	Dr. Galloway	Dermatological.
,,	22nd	Dr. Willcocks	Medical Cases.
March	1st	Mr. Gibbs	Surgical Cases.
,,	8th	Dr. Murray	Medical Cases.
,,	15th	Dr. Hunter	Pathological.

The Class meets on Thursday, at 4 P.M. Fee for each Course of ten Lectures, One Guinea.

Practitioners wishing to join are requested to communicate with the undersigned at the Hospital.

STANLEY BOYD, Hon. Treasurer.
FREDERICK WILLCOCKS, M.D., Hon. Sec.

Bedford College, London (for WOMEN), York-place, Baker-street, W.

HYGIENE AND PUBLIC HEALTH.

The LENT TERM begins on Jan. 18th.

LECTURERS:—

Hygiene—Walter C. C. Pakes, D.P.H. Camb.
Physiology—J. S. Edkins, M.A., M.B. Camb.
Bacteriology—A. C. Houston, M.B., D.Sc.
Chemistry—Holland Crompton, F.C.S.
Physics and Meteorology—F. Womack, B.Sc., M.B. Lond.

For prospectus and all particulars apply to the Principal at the College.

Royal Westminster Ophthalmic HOSPITAL, King William-street, Strand.

Patients are seen daily from 1 P.M., and Clinical Instruction is given.

For particulars of the various Classes and Lectures apply either at the Hospital or to Mr. ADAMS FROST, 30, Cavendish-square, W.

Fees, not exceeding six months, £3 3s. Perpetual, £5 5s.

THE LONDON SCHOOL OF TROPICAL MEDICINE

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CONNAUGHT ROAD, ALBERT DOCK, E.

IN CONNEXION WITH THE HOSPITALS OF THE SEAMEN'S HOSPITAL SOCIETY.

The next SESSION commences on Monday, January 15th, 1900.

A Travelling Scholarship of £300 will be offered to students of the School.

The Laboratories, Museum, Library, &c., are open daily.

Lectures on Tropical Medicine, Tropical Hygiene, and Surgery in the Tropics are delivered during the Session.

Clinical Instruction is given daily in the wards of the Hospitals.

Special arrangements for board will be made for those who may desire to reside on the premises.

For prospectus, syllabus, and other particulars apply to the Secretary, P. Michelli, Esq., Seamen's Hospital, Greenwich, S.E.

St. Bartholomew's Hospital and COLLEGE.

FIRST F.R.C.S. CLASSES.

Special Classes in ADVANCED ANATOMY and PHYSIOLOGY for the First F.R.C.S. Examination in May will be held on Tuesdays, Wednesdays, and Fridays, commencing on January 9th, and continuing up to the Examination.

For particulars, apply to the Warden of the College, St. Bartholomew's Hospital, E.C.

2ND CONJOINT and HALL.—The Special Course for the Jan. Exam. now on.

COOKE'S SCHOOL.—ANATOMY, PHYSIOLOGY, SURGERY (Operative) taught rapidly and practically.

Morning and Afternoon Classes; dissecting-room open from 9 to 5. Recognised (see prospectus) by the Conjoint and other examining Boards. Special Class for Dec. M.B. now on. Class for the May F.R.C.S. will begin shortly.—Apply to Secretary, 40, Brunswick Square, W.C. *Resident Students have the advantage of Private Evening Classes free of charge.*

Mr. COOKE'S TABLETS OF ANATOMY, 11th Edition, now ready, thoroughly brought up to date, and with over 700 illustrations.

Epsom College.—Seven Entrance SCHOLARSHIPS of £30 each will be offered next July.—Apply, The Bursar.

NAVAL MEDICAL EXAMINATION.

Copies of Papers set for the above Examinations during recent years may be obtained of

Messrs. LARCOM & VEYSEY,
51 and 52, Queen-street, PORTSMOUTH.

NAVAL MEDICAL EXAMINATION.

PAST EXAMINATION PAPERS "FREE OF CHARGE."

Messrs. BILNEY & CO., Naval Outfitters, 98 & 100, St. George's-square, Portsea, have by them the copies of questions set at the examinations for Naval, Army, and Indian Medical Examinations since 1884, and will be pleased to lend them to candidates free of charge on receipt of threepence to defray cost of postage. Estimate for outfit and other particulars can also be forwarded if required.—London address, 36 Craven-street, Strand, W.C.

POST-GRADUATE COURSE.

London Throat Hospital, 204, Great Portland-street, W.

A Course of Practical Demonstrations and Instruction on the Diseases of the Throat, Nose, and Ear, will be given Mondays, at 4.30 p.m., commencing Jan. 22, 1900.

Admission to the course free to qualified practitioners.

For particulars as to Clinical Assistantships, &c., apply at the Hospital.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN,

LEICESTER SQUARE, W.C.

The OUT-PATIENT PRACTICE is open free to the Medical Profession at the following times on presentation of their cards to the Medical Officer in attendance. Every day from 2 to 4 P.M.

CHESTERFIELD LECTURES are given free on Thursday evenings at 6 o'clock.

The In-patient Department, Arlington House, Uxbridge-road, W., is now open with 50 beds. The majority are for free patients, but there is also accommodation for paying cases.

J. DUNLOP COSTINE, Superintendent

BACTERIOLOGY.

Bacteriological Department, King's COLLEGE, LONDON.

Director, Professor CROOKSHANK.

The Laboratories are open daily for INSTRUCTION and RESEARCH, from 10 A.M. to 5 P.M. For syllabus of classes, apply to the Secretary.

For information and advice as to the course of instruction to be selected, application must be made in writing to Professor Crookshank, or an interview may be obtained by appointment.

SPECIAL CLASSES IN JANUARY.

Two complete courses of practical instruction for medical practitioners, veterinary surgeons, analysts, &c., will commence on Jan. 8th.

Demonstrations to the Morning Class (Dr. Newman, D.P.H.) will be given at 11 A.M. and to the Afternoon Class (Dr. Nash, D.P.H.) will be given at 2 P.M. three days a week, with practical work daily in the Laboratory for Thirty Days.

A class for candidates for the D.P.H. (Bacteriology) will commence on Jany. 8th, at 10 A.M., and a time-table arranged to suit the convenience of the class.

A Class in Clinical Bacteriology, consisting of demonstrations with practical work, will commence on Wednesday, Jan. 10th (2 to 3.30) and be held on successive Wednesdays for six weeks.

MEDICAL DEPARTMENT OF THE NAVY.

ADMIRALTY, Northumberland-avenue, W.C.
14th December, 1899.

An Examination of Candidates for entry into the Medical Department of the Royal Navy will be held on the 19th February next and following days at Examination Hall, Thames Embankment.

Not less than Sixteen Commissions as Surgeon will be offered for competition.

The forms to be filled up by Candidates will be supplied on application to this Department. H. F. NORBURY, Director General.

ARMY MEDICAL SERVICE.

An Examination of Candidates for 30 Commissions in the Royal Army Medical Corps will be held at the Examination Hall, Victoria Embankment, W.C., on February 2nd, 1900, and following days.

Applications to compete should be made no later than January 22nd, on which date the list will be closed.

The following is the scale of pay stated in annual amounts:—

Lieutenants and Captains ...	£200 to £273 15s. 0d. a year.
Majors	£365 to £410 12s. 6d. ,,
Lieut.-Colonels	£456 to £601 15s. 0d. ,,
Colonels	£730 a year.
Surgeon-Generals	£1003 15s. a year.

Exclusive of quarters, fuel, servants, &c., or allowances in lieu.

GRATUITIES AND PENSIONS.

After 10 years' service, gratuity of				£1250
,, 15 ,,	,,	,,		£1500
,, 18 ,,	,,	,,		2500
,, 20 ,,	,, annual pension of			365
,, 25 ,,	,,	,,	,,	£410 to 500

Colonels after 5 years' service as such about £640
Surgeon-Generals after 5 years' service as such about £730

The necessary forms, together with regulations and all further information, can be obtained from the Director-General, Army Medical Service, 13, Victoria-street, S.W.

(Signed) J. JAMESON, Director General.

War Office, Nov. 27th, 1899.

DIPLOMA IN PUBLIC HEALTH.

London Hospital Medical College.

A SIX MONTHS' COURSE of Laboratory Instruction, including Lectures on Public Health and Out-door Sanitary Work, will commence on January 8th.

Hygiene, by J. C. Thresh, M.D.Vic., D.Sc., D.P.H., Medical Officer of Health to the Essex County Council. Bacteriology, by W. Bulloch, M.D.Aberd. Chemistry and Physics, F. J. M. Page, B.Sc., F.I.C., F.C.S.

Fees for six months, including attendance under the Medical Officer of Health, 30 guineas.

MUNRO SCOTT, Warden

JENNER INSTITUTE OF PREVENTIVE MEDICINE.

The next Session will commence on Monday, January 8th, at 11 A.M. The Laboratories are open for Investigation and Instruction. A Three Months' Course in Systematic Bacteriology will be given. The class will meet three times weekly at 10 A.M.

A Full Course in Hygiene (Bacteriology, Chemistry, and Sanitary Science) extending over six months will likewise commence on the above date.

Further particulars on application to the Secretary, Chelsea-gardens, S.W.

ST. JOHN AMBULANCE ASSOCIATION.

INVALID TRANSPORT SERVICE

(under the patronage of many leading physicians and surgeons), for the conveyance of sick and injured patients (infectious cases excepted) to and from all parts. The Association has a fully-trained Staff and all necessary appliances.—For particulars apply to the Transport Manager, St. John's Gate, Clerkenwell, E.C. Telegrams: First-aid, London. Telephone 861, Holborn.

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The SCHOLASTIC, CLERICAL, and MEDICAL ASSOCIATION gives ADVICE and ASSISTANCE, without charge, to Parents and Guardians in the Selection of Schools (for Boys or Girls), and Tutors for all Examinations at Home or Abroad.—A statement of requirements should be sent to the Manager, 8, Lancaster-place, Strand.

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D.P.H.
EDINBURGH CLASSES.

High percentage of Successes. Practical Chemistry, qualifying for the various Examining Boards, commences Jan. 9th. Practical Bacteriology commences Jan. 29th. The out-door sanitary work is done in the city. Any of the Classes may be taken independently. Further information and advice may be obtained from Mr. G. H. Gemmell, F.C.S., care of Tatlock and Readman, Chemical Laboratory, School of Medicine, 4, Lindsay-place, Edinburgh.

UNIVERSITY OF BRUSSELS.

Copies of the M.D. Regulations and information supplied by an M.D. Brux. The Class meets three days a week at 4.30 o'clock. Postal Course for Provincial Practitioners, with Practical Work in London before exam. At the June, 1899, Exam. all the successful candidates (8) were pupils.

Cantab., 38, Manchester-street, Manchester-square, W.

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Offices—27, SOUTHAMPTON STREET, STRAND, LONDON, W.C.
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Preparation, through the Post or Orally, for all Medical Examinations, especially for the

M.D. **D.P.H.** **F.R.C.S.**

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Among recent successes, 1892-99, eighteen U. E. P. I. candidates (including eight during last two years) passed the M.D. or M.S. (Lond.), one taking the Medal. Of the seven candidates who passed the April, 1897, M.D. (Durh.) Examination for practitioners of fifteen years' standing, three were prepared by this Institution. Six D.P.H. successes in 1899, two with distinction. Oral D.P.H. Class begins Jan. 23rd.

D.P.H. Cantab.

An Oral Class (ten weeks) for the above Examination will begin Tuesday, January 23rd.

Fee, including practical work, 12 guineas. Special attention to the mathematics required and to bacteriology. Numerous successes.

Full particulars on application to Mr. E. S. Weymouth, M.A., Manager of

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Prelim. Scientific and Inter. Science Classes. Commence Jan. 22nd. Medical Preliminaries. Oxford and Cambridge 1st M.B. Practical Physics, Chemistry, and Biology Classes. Legal and Medical Preliminaries. Conjoint Examinations. Hospital and University Scholarships. Durham Examinations. Private Tuition. Science Laboratories. Large Staff. Prospectus and List of Lecturers on application to R. C. B. KERIN, B.A. (London), First in First-class Classical Honours, Editor of "Phaedo" and "Pro Plancio," CARLYON COLLEGE, 56 and 56, Chancery-lane, W.C.

SUCCESSES.—Science Scholarships, Guy's and Westminster, 3; Med. Prelim., 62; London Matric., 59; Inter. Arts, Sci., and Prelim. Sci., 53; 6 in Hons.; B.A. and B.Sc., 55; 1st M.B., 3; M.A., 2. Many Successes in other Examinations.

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"Mrs. Behnke has recently treated with success some difficult cases of stammering at Guy's. The method is scientifically correct, and perfectly effective for those who are determined to conquer the defect."—GUY'S HOSPITAL GAZETTE.

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EXAMINATIONS.

Classes are held for the various Conjoint and Hall Examinations. Also for the M.R.C.P. Lond., M.D. Brux., and M.D. Durham. Fifteen years' standing (candidates have been sent up for the last twenty-five exams.). Clinical museum and microscopic demonstrations.—Address, M.D., 23, Wimpole-street, W.

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Salop.—A Private Institution for the Treatment of Mental Diseases (Upper Class only).

See Medical Directory, p. 1943, or Album.

Prospectus from Resident Medical Officer.

Telegrams: Campbell Hyslop, Church Stretton.

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A HOME for NERVOUS and MENTAL CASES. Stations, L. & N. West. and Mid. Railways.

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MENTAL DISEASES, Barnwood, near Gloucester. Exclusively for Private Patients of the Upper and Middle Classes. This Institution is devoted to the Care and Treatment of persons of both sexes at moderate rates of payment. The terms vary according to the requirements of the patients, who can have private rooms and special attendants, or be accommodated in Detached Villas and in the Branch Convalescent Establishment on the hills. Under special circumstances the rates of payment may be greatly reduced by the Committee.—For further information apply to J. G. Soutar, M.B., the Med. Supt.

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For terms, &c., apply to Dr. TATE, Medical Superintendent.

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Warneford Asylum, Oxford.—This

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Thirty Years' Experience. Excellent Medical References.
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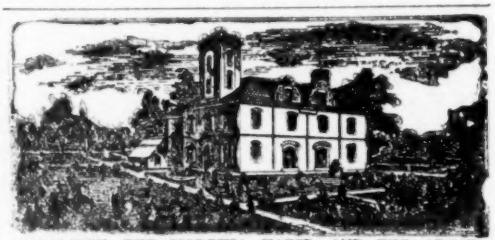

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There is also a Seaside House, to which patients may be sent.

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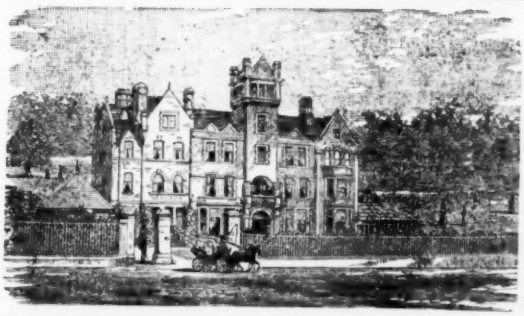
For particulars apply to MEDICAL SUPERINTENDENT, *or* **T. WALTER BRIMACOMBE (Licensee).**



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TOWER HOUSE RETREAT & SANATORIUM (Ltd.), Westgate-on-Sea, Kent.

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Licensed under the Inebriates' Acts, 1879-88. The only establishment in the United Kingdom specially erected for the reception and treatment of Ladies and Gentlemen desirous of overcoming habits of Intemperance or of the Abuse of Narcotic Drugs.

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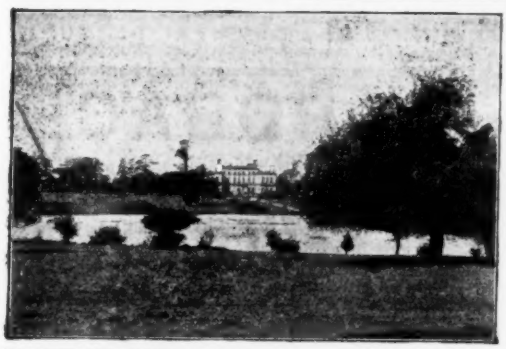
Patients can be received under the Act or privately.

For prospectus, forms (when required) for signature under the Act, and further particulars, address Secretary, Tower House, Westgate-on-Sea. Telephone No. 26.



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NEWLANDS HOUSE,

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A HOME FOR THE CARE AND TREATMENT OF GENTLEMEN MENTALLY AFFLICTED.

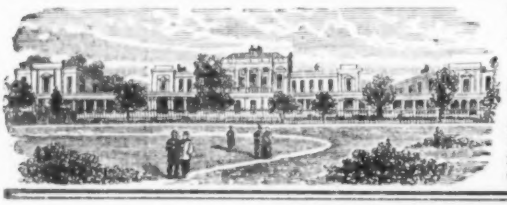
Apply to H. J. HIND, Esq., M.R.C.S. (Resident Medical Superintendent), or to A. H. SUTHERLAND, Esq (Licensed Proprietor), 2A, Marloes-road, Kensington W

HAYDOCK LODGE, NEWTON-LE-WILLOWS, LANCASHIRE,

Is charmingly situated in a healthy and retired neighbourhood, midway between Liverpool and Manchester, about two miles from Newton-le-Willows Station on the London and North-Western Railway. It is a comfortably-furnished country mansion, especially adapted for the care and treatment of persons of unsound mind. Besides the use of the general sitting-rooms, &c., patients of both sexes can have private apartments and special attendants at moderate rates of payment. *Information as to terms, &c., may be obtained on application to the Resident Medical Superintendent*—CHARLES T. STREET, L.R.C.P.Lond., M.R.C.S.Eng., who attends at 51A, Rodney-street, Liverpool, every Thursday, from 2 to 4.

Telegrams: Street, Ashton-in-Makerfield. Telephone (National) No. 3, Ashton-in-Makerfield.

Visiting Physician: ALEXANDER DAVIDSON, M.D., F.R.C.P., Physician to the Liverpool Royal Infirmary.



NORTHWOODS HOUSE
WINTERBOURNE, near Bristol.

PRIVATE ASYLUM for LADIES and GENTLEMEN.

Situated in a large park in a healthy and picturesque locality, easily accessible by rail viâ Bristol, Patchway, or Yate Stations. Uncertified Voluntary Boarders can now be received.—For further information see Medical Directory, page 2089, and for terms, &c., apply to Dr. EAGER, Resident Physician.

AUVERGNE, FRANCE. **LA BOURBOULE** MOUNTAIN CLIMATE. ALTITUDE 2800 FEET.

The richest HOT ARSENICAL water known, muriated and alkaline.

Skin Diseases, Lymphatic Affections, Anæmia, Diseases of the Respiratory Organs, Nasal Catarrh, Asthma, Diabetes, Malaria, Rheumatic and Gouty Dyscrasia.

Season: JUNE TO SEPTEMBER INCLUSIVE AN ENGLISH PHYSICIAN PRACTISES AT THE SPA.

The imported waters offer a valuable form for administering arsenic. Dose: 1 to 3 glasses a day. *Demand the* CHOUSSY *and* PERRIÈRE *sources.*

THE SCOTS NORDRACH
(NORDRACH ON DEE)
SANATORIUM,

IN COURSE OF ERECTION IN THE WELL-KNOWN PINE DISTRICT OF

DEESIDE,

WILL BE OPENED NEXT SPRING FOR THE

OPEN-AIR TREATMENT OF PHTHISIS.

It is claimed that the site which has been chosen is, above all others in Scotland, specially suited for the carrying out of the Nordrach Treatment of Tuberculosis. That claim is supported by the following scientific facts:—

I. **Rainfall,** 26 inches, is lower than that of London.

II. **Sunshine,** 30 per cent., is exceedingly high. That of Greenwich is 26 per cent.

III. **Winds,** on the whole are warm. **South West Winds** prevail during nearly nine months in the year.

IV. **Temperature of the Air in Winter** is high. An average in December and early January in one year was 36·2° F., as compared with 28·1° F. at Greenwich.

V. **Ozone.** The atmosphere contains over 21 per cent. of Oxygen and is particularly rich in Ozone.

VI. **Purity of Air** is remarkable. Aberdeen 18½ miles away is the nearest large town.

VII. **Pine** Forests surround the Sanatorium and abound throughout the whole district of middle and upper Deeside. They afford an ample supply of terebenthine vapours and excellent shelter

Address NORDRACH ON DEE, BANCHORY, N.B.

ASHWOOD HOUSE, KINGSWINFORD, STAFFORDSHIRE.

An old-established and modernised Institution for the Medical Treatment of Ladies and Gentlemen mentally afflicted.

The House, pleasantly situated, stands in picturesque grounds of forty acres in extent, with a surrounding country noted for the beauty of its walks and drives. The climate is genial and bracing. Occupation, in-door and out-door amusements, and carriage and other exercise amply provided.

Terms range from 2½ to 6 guineas per week, inclusive, according to requirements as to accommodation, special attendance, &c.

Railway Stations: Stourbridge Junction (G.W.R.), 3½ miles; Dudley (L. & N.W.R.), 4 miles; Wolverhampton (G.W.R. or L. & N.W.R.), 7 miles. Intending visitors can be met at any of these stations.

For further particulars apply to the Medical Superintendent.

Clacton-on-Sea.—W. Overend, M.A.,

M.D. Oxon, can receive one or two RESIDENT PATIENTS. Clacton has a southern aspect, a low rainfall, and plenty of sunshine. Fogs are uncommon and the air is always bracing. Attention to comfort and diet. Massage and Nauheim treatment if required.—Address, Dr. Overend, Glenroy, Clacton-on-Sea.

Wanted, Home for poor Boy,

aged six, of Weak Intellect, where he could be taught to speak distinctly and his mind developed. Small fee only.—Address, Dr Toller, Ilfracombe.

Patients desiring Medical Attendance

or Supervision can be received into the house of a Medical Man (married) residing at the seaside. Exceptional experience in the treatment of all forms of drug and alcoholic abuse.—Address, in first place, to No. 118, THE LANCET Office, 423, Strand, W.C.

Small-pox and Vaccination Hospital,

Clare Hall, South Mimms, High Barnet. (Instituted 1796.)

Patients suffering from Small-pox can be received at the above Hospital.

On receipt of telegram or letter addressed to the Resident Surgeon, ambulance will be sent to address given. No charge but drivers' fees.

Inclusive terms £5 5s. each patient, paid on admission.

St. Luke's Hospital, London, E.C.

Established 1751.

This Hospital was established for the Treatment of Mental Diseases of the Middle Classes. Preference is given to acute cases, and these are admitted either gratuitously or on payment of a weekly sum varying from 14s. to 30s., according to the circumstances of each. Patients are eligible for admission from any part of the United Kingdom.

The Convalescent Establishment in connexion with the Hospital is at St. Lawrence, Ramsgate.

Forms of application may be had from, and inquiries addressed to, the Secretary, at the Hospital, Old-street, London, E.C.

Aug. 31st, 1896. W. H. BAIRD, Secretary.

C.E.T.S. HOMES FOR FEMALE INEBRIATES.

Patients are received at Ellison

Lodge, Herne Hill, S.E., and at Temple Lodge, Torquay.

Three classes of patients received, payments varying from 7s. 6d. to £2 2s. For information apply Secretary, C.E.T.S. 4, The Sanctuary, Westminster, S.W.

ABERYSTWYTH, "The Biarritz of Wales,"

is highly recommended for invalids. It possesses the most equable temperature, its shores being swept by the Gulf Stream and the S.W. breezes of the Atlantic. The drainage is perfect, and the town is supplied with the purest water from Plynlimmon.

The late Sir James Clarke, M.D., says: "A fortnight in Aberystwyth is equivalent to a month's residence in most watering-places."

TREATMENT OF INEBRIATES—GENTLEFOLK ONLY.

Dr. Stewart of "Dunmurry,"

Sneyd Pk., nr. Clifton (Estd. 1876), & Mrs. S. (both total abstainers) receive as voluntary boarders in their family a few Ladies and Gentlemen of good social position anxious to be *permanently* cured of inebriety. Refined society. Bracing air. No "nervous" cases. No legal formalities. Telegrams: "Dr. STEWART, Dunmurry, Rockleaze, Bristol."

London Fever Hospital, Liverpool-road, Islington, N.

DISEASES TREATED:—Scarlet Fever at all times, and Diphtheria, Measles, German Measles, and Typhoid whenever accommodation can be made available.

Private rooms (for scarlet fever only) at £3 3s. a week. Ward patients pay a fee of £3 3s. each, equal to about a fourth of their cost on an average, the balance falling upon the funds of the Hospital.

Governors' servants, and certain employés of subscribing firms, clubs, and hotels, are treated free of all charge.

The Hospital is not connected with the Metropolitan Asylums Board and receives no aid from the rates.

In applying for admission send medical certificate and the name of some one who will guarantee payment of fees.

Additional help is urgently needed.

Bankers: Prescott & Co., 50, Cornhill, E.C.

W. CHRISTIE (Major), Secretary.

A young Invalid Gentleman wishes

to Reside with a Doctor. Country or seaside. Terms moderate.—Address, No. 117, THE LANCET Office, 423, Strand, W.C.

Prudential Assurance Company,

LIMITED, HOLBORN BARS, LONDON.

Founded 1848.

Invested funds, £35,000,000.

Union Assurance Society.

A.D. 1714.

Chief Office: 81, Cornhill, London, E.C.

West-end Branches: 55, Charing-cross, S.W.; 70, Baker-street Portman-square.

FIRE AND LIFE.

Accumulated Funds	...	...	...	£3,300,000.
Annual Income	...	...	...	£1,000,000.

Swedish Medical Gymnast and

Masseur (speaks English) wants Employment by prominent physician. Connections in highest society. Speciality: Diseases of the Nerves and Interior Organs, Rheumatism, Gout, Anæmia.—Address, No. 125, THE LANCET Office, 423, Strand, W.C.

County Borough of Croydon.—

CROYDON BOROUGH HOSPITAL.—APPOINTMENT OF MATRON.—Notice is hereby given that the Council are prepared to receive applications from Certified Nurses between the ages of thirty and forty-five years for the appointment of Matron at the Croydon Borough Infectious Diseases Hospital, situate at Waddon, near Croydon.

The salary will be £80 per annum, increasing by annual increments of £5 to a maximum of £90 per annum, with rations and house accommodation, and will be subject to an annual percentage deduction in accordance with the provisions of the Superannuation Scheme adopted by the Council under the powers of the Croydon Corporation Act, 1895.

Preference will be given to candidates who had held a similar position, or who have acted as charge nurses in a public institution.

Applications accompanied by copies (not originals) of not more than three recent testimonials to be sent to me not later than Friday, the 12th January, 1900, endorsed "Matron for Borough Hospital."

Canvassing will be a disqualification.

By order,

E. MAWDESLEY, Town Clerk.

Town Hall, Croydon, 1st January, 1900.

Medical Officer, duly qualified

(Public Health qualification a recommendation) wanted for the Parish of Gairloch, Ross-shire, to reside at Poolewe. Knowledge of Gaelic essential. Salary from the Parish Council £200 per annum besides private practice.—Apply, stating age and qualifications, with testimonials, to James Mackintosh, Inspector of Poor, Poolewe, 9th December, 1899.

Three Counties Asylum, near

Hitchin, Herts.—Wanted, a SECOND ASSISTANT MEDICAL OFFICER. Salary commencing at £150 per annum, with board, apartments, washing, and attendance.

Candidates must be males under thirty-five years of age, unmarried, and registered in Medicine and Surgery.

Applications, stating age and qualifications, with six copies of applicant's testimonials, to be forwarded on or before the 10th January, 1900 to

F. G. BUTLER,

Clerk to the Visiting Committee, St. Neot's, Hunts.

Birmingham and Midland Eye

HOSPITAL.—Wanted, an ASSISTANT HOUSE SURGEON at the above Hospital, receiving 25,427 patients. The Assistant House Surgeon must be a Graduate in Surgery of any British University or a Member or a Fellow or Licentiate by examination of the College of Surgeons of England, Ireland, or Scotland. Salary £50 per annum, with apartments and board. Testimonials and evidence of registration to be addressed to the Chairman of the Medical Board, on or before Monday, the 15th day of January next. Special evidence of pathological training is expected. Any further information may be obtained on application to the Secretary. By order.

CRANMER GELL, Secretary.

Secretary's Office, Church-street, Birmingham, Dec. 23rd, 1899.

Medical Officer of Health for County

of SUTHERLAND.—Applications are wanted for the office of Medical Officer of Health for the County of Sutherland.

Applicants must be registered Medical Practitioners and possess a diploma in Sanitary Science, Public Health, or State Medicine, under Section 21 of the Medical Act, 1886.

Salary £300 per annum, with £50 in lieu of travelling and other expenses, except forms and official stationery and postages.

The Medical Officer will act as Officer for the Local Authority under the Public Health (Scotland) Act, 1897, and Acts therein referred to, and shall be subject to such bye-laws regulating the duties of the Medical Officer of Health for the County as may from time to time be made by the County Council.

The Medical Officer shall devote his whole time to the duties of his office, and shall not hold any other appointment or engage in private practice.

The applicant selected will be required to enter upon his duties immediately after his appointment.

Applications, stating qualifications and age, accompanied by testimonials, must be lodged with the undersigned on or before 20th January, 1900. ARCHD. ARGO, County Clerk.

County Clerk's Office, Golspie, 20th Dec., 1899.

London Hospital, Whitechapel-road, E.

—ASSISTANT PHYSICIAN.—There is a vacancy in the position of Assistant Physician at the London Hospital.

Applications and testimonials must be delivered at the House Governor's Office not later than 10 A.M. on Friday, 26th January, 1900.

Extract from Section XIII., Paragraph I., of the Bye-laws: "No person shall be eligible for the office of Assistant Physician to the Hospital unless he shall be a Member of the Royal College of Physicians, London."

G. Q. ROBERTS, House Governor and Secretary.

The Middlesex Hospital, W.—Appli-

cations are invited for the office of ASSISTANT to the Director of the Cancer Research Laboratories. Salary £100 per annum, with an honorarium of £50 after his second year of office if elected. The gentleman appointed would be required to devote his whole time to the work of the department, to assist in the general routine work of the Laboratories, and make the post-mortem examinations of all patients dying in the special Cancer Wards.

Candidates, who must be doubly qualified, registered medical men, are requested to send in their applications to the undersigned, together with testimonials, on or before the 10th January, 1900. The appointment is an annual one but the officer is eligible for re-election. Candidates are to attend on Friday, 12th January, 1900, at 5 P.M.

F. CLARE MELHADO, Secretary-Superintendent.

20th December, 1899.

Central London Ophthalmic Hos-

PITAL, Gray's Inn-road, W.C.—There is a vacancy for HOUSE SURGEON. Applications with testimonials from duly qualified candidates, must be sent to the Secretary, on or before 9th January next. Candidates must attend at the Hospital on Thursday, the 11th January, at 4 P.M. Salary at the rate of £50 per annum, with board and residence provided in the Hospital.

JOHN GRIGGS BRYANT, Secretary.

Aberystwyth Infirmary. — House

SURGEON required. Must be duly qualified and registered. Thorough knowledge of Welsh essential. Must also act as Secretary. Salary £150, with the usual residential allowances (stimulants excepted). To commence duties March 1st, 1900. Canvassing prohibited.

Applications, &c., to be sent not later than January 20th, 1900, to the Secretary, Infirmary, Aberystwyth.

Bradford Children's Hospital.—

Wanted, a HOUSE SURGEON (Gentleman), doubly qualified. Salary £80, with board, residence, and washing.

Applications, with testimonials, by Jan. 12th to

Bradford, Dec. 27th, 1899. C. V. WOODCOCK, Secretary.

District Infirmary, Ashton-under-

Lyne.—Wanted, by the end of January, a HOUSE SURGEON with registered Medical and Surgical diplomas. One hundred beds. Salary £100 a year and board and lodging. He should be able to give lessons to probationers.

Applications, enclosing testimonials and stating age, to be sent to the undersigned, the Hon. Secretary, on or before 9th January, 1900, marked outside "Application for the Office of House Surgeon." Personal canvassing is prohibited. WILLIAM BOTTOMLEY.

120, Stamford-street, Ashton-under-Lyne.

City of London Hospital for Diseases

of the CHEST, Victoria-park, E. (nearest station Cambridge-heath, G.E.R.).—Applications, with testimonials, for the post of SECOND HOUSE PHYSICIAN are invited to be sent to the Secretary on or before Jan. 10th, 1900. The appointment will be for six months. Candidates must be qualified. Board and residence provided, and salary at the rate of £30 per annum.

The successful candidate will be required to enter upon his duties on or about the 1st February.

Information as to duties, &c., can be obtained by application to Secretary, by letter or personally.

HENRY T. DUDLEY RYDER, Secretary.

The General Infirmary at Leeds.—

Wanted, a HOUSE PHYSICIAN, who will be appointed for six months. Board, lodging, and washing will be provided. Candidates must be qualified and registered.

Further particulars may be obtained from the Secretary to the Faculty at the Infirmary, to whom applications must be sent not later than Monday, the 22nd inst. By order.

Infirmary, Jan. 6th, 1900. THOMAS BLAIR, General Manager.

An Assistant Medical Officer is

required by the Metropolitan Asylums Board at their Imbecile Asylum at Caterham in Surrey. Salary £120 per annum, rising at the discretion of the Asylums Committee to £150, with board, lodging, attendance, and washing, subject to the provisions of the Poor Law Officers' Superannuation Act, 1896.

Candidates must be unmarried, must not exceed thirty-five years of age, and must be duly registered and qualified by law to practise both medicine and surgery in England. The person appointed will be subject to annual re-election after the completion of his third year of office.

Forms of application may be obtained at the office of the Board, Norfolk House, Norfolk-street, Strand, London, W.C., where such forms duly filled up and accompanied by copies of not more than three testimonials are to be delivered not later than 11 A.M. on Saturday, 20th January, 1900. Selected candidates will be written to. Canvassing is strictly prohibited.

By order.

Jan. 2nd, 1900. T. DUNCOMBE MANN, Clerk to the Board.

The House Committee of the Jews'

HOSPITAL AND ORPHAN ASYLUM, West Norwood, invite applications for the post of DENTAL SURGEON to the institution.—Particulars as to qualification, remuneration, &c., to be forwarded, with copies of testimonials, to M. J. Green, Secretary, Jews' Hospital and Orphan Asylum, Hamilton House, 149, Bishopsgate-street Without, E.C.

Wanted, a young, unmarried

Medical Man, as SECOND MEDICAL OFFICER to the Assam Frontier Tea Company, Limited, on their estates in Assam.—Apply by letter only, stating age, qualifications, experience, and nationality, also giving references, to the Secretaries of the Company, 88, Bishopsgate-street Within, London, E.C.

Full particulars as to terms will be sent to likely applicants.

The General Infirmary at Leeds.—

Wanted, a RESIDENT CASUALTY OFFICER, who must be legally qualified and registered. He will receive a salary of £100 a year in addition to board, lodging, and washing.

Further information as to duties, &c., may be obtained from the Secretary to the Faculty, General Infirmary, Leeds, to whom applications and testimonials must be sent not later than Jan. 16th, 1900.

By order.

Jan. 6th, 1900. THOMAS BLAIR, General Manager.

Junior Assistant Medical Officer

wanted at the GLAMORGAN COUNTY ASYLUM, Bridgend. Salary £150, with board, apartments, washing, and attendance. Must be single. Not over thirty-five years of age.—Applications, stating age and qualifications, and testimonials to be sent to the Medical Superintendent not later than 17th January.

West Kent General Hospital, Maid-

stone.—Wanted, a HOUSE SURGEON. Salary 100 guineas per annum, with board and residence, &c., rising 10 guineas per annum up to 120 guineas. Candidates, who must be unmarried and registered under the Medical Act, are requested to send their applications and testimonials, accompanied by a certificate of registration, to the Secretary on or before Monday, the 15th of January next. Preference will be given to candidates having held previous hospital appointments. No personal canvassing allowed. By order.

Jan. 1st, 1900. J. SPOONER HARDY, Secretary.

The Royal Sea-Bathing Hospital,

Margate.—The office of ASSISTANT RESIDENT SURGEON will be vacant on the 1st February next. Candidates for the post must be legally qualified and registered.

Salary, £52 per annum, with board and residence. Applications, stating age, and previous appointments, with copies of three recent testimonials, must be sent in not later than 18th January next to the Secretary, Royal Sea-Bathing Hospital Offices, 30, Charing Cross, London, S.W. M. BIDDULPH, M.P., Treasurer.

Royal Portsmouth, Portsea, and

Gosport Hospital.—An ASSISTANT HOUSE SURGEON required. Candidates must be fully qualified and registered. The appointment is for six months. Remuneration at the rate of £50 per annum, with board and residence. The elected candidate will be required to enter upon his duties at once. Applications with testimonials to be sent to the Secretary on or before Thursday, 18th Jan., 1900.

J. A. BYERLEY, Secretary.

Hospital and Dispensary, Newark-

upon-Trent.—HOUSE SURGEON (unmarried) wanted. To commence duties about the last week in February, 1900. Salary £80 per annum with board and lodging in the hospital. Candidates must be registered.—Applications to be made on printed forms obtainable from the Secretary.—Applications must be received by January 20th next.

Jan. 3rd, 1900.

Brecon Infirmary (16 beds and out-

door Patients).—Wanted, to enter upon the duties forthwith, a RESIDENT HOUSE SURGEON (unmarried) who will also undertake dispensing. Candidates must be qualified and registered in medicine and surgery.

Salary, £90 per annum, with furnished apartments, board (all found except beer), attendance, fire, and gas. Three months' notice.

Applications, accompanied with (not exceeding four) recent testimonials and photograph, to be sent to the undersigned on or before the 17th day of January, 1900. W. POWELL PRICE, Secretary.

No. 6, Bulwark, Brecon, South Wales.

Northampton General Infirmary.—

A meeting of the Electoral Committee of this Infirmary will be held on Saturday, the 3rd February, at Twelve o'clock, to appoint an ASSISTANT HOUSE SURGEON. Candidates must hold a registered Medical and a registered Surgical qualification; be unmarried, and not under 25 years of age.

The salary will be £100 per annum, with furnished apartments, board, attendance, and washing. The gentleman elected will be expected to enter upon the duties of his office forthwith, and to give one month's notice of resignation. Applications, with testimonials, and a statement of Diplomas, to be sent to the Secretary on or before Thursday, the 18th inst. The original Diplomas must be produced by candidates on the day of election.

In selecting candidates the Committee of Selection will give preference, firstly, to candidates who have held a resident appointment at the Hospital where they have received their medical education; and, secondly, to those who have held a similar post at a recognised Public Hospital, or who have held the post of Resident Dresser at this Infirmary.

Jan. 5th, 1900. C. S. RISBEE, Secretary.

Leeds Public Dispensary. — A

vacancy for a JUNIOR RESIDENT MEDICAL OFFICER. Salary £85.—Apply, Secretary of Faculty, by 10th inst.

Kent and Canterbury Hospital.—

An ASSISTANT HOUSE SURGEON wanted for this Hospital, to enter on his duties on 28th February, 1900.

The Assistant House Surgeon must be a registered medical practitioner and unmarried.

Salary £80 a year, with board, &c.

Applications, stating age and accompanied by testimonials, should be delivered on or before Thursday, 25th January, under cover, addressed to the Secretary, from whom copies of the by-laws may be obtained.

Canterbury, Jan. 2nd, 1900. A. J. LANCASTER, Secretary.

Nottingham General Dispensary.—

Wanted immediately, ASSISTANT RESIDENT SURGEON. Salary £130 per annum. There are three Resident Medical Officers, who board housekeeper and servant and themselves. All other expenses, wages, coal, gas, furnished apartments, &c., are found by the Institution.

Candidates must be qualified to practise medicine and surgery, registered, and unmarried.

Apply, with qualifications and copies of testimonials, to Secretary.

Whitehaven and West Cumberland

INFIRMARY.—Wanted, for the above Institution, a HOUSE SURGEON, doubly qualified. Salary £120 per year and £30 per year for Dispensing, with furnished apartments and attendance.—Applications with testimonials to be sent to the undersigned not later than the 20th inst.

Infirmary, Whitehaven. TYSON KITCHIN, Secretary.

Wanted, young Medical Officer for

the Hospital Mission Ship "Queen Victoria," sailing at once for two months. Salary three guineas per week and board.—Apply, Secretary, Royal National Mission to Deep Sea Fishermen, Bridge House, 181, Queen Victoria-street, E.C.

Doncaster General Infirmary and

DISPENSARY.—In-door DISPENSER and ASSISTANT to the HOUSE SURGEON wanted. Good opening for a Student reading for his final. Honorarium, 20 guineas per annum, with board, lodging, and washing.

Duties to commence 1st February.

Applications, stating age, with testimonials, to be forwarded to the Hon. Secretary, General Infirmary, Doncaster, not later than 17th January.

The appointment to be subject to one month's notice on either side.

The Hospital for Sick Children,

Great Ormond-street, London, W.C.—There will be a meeting of the Joint Committees on Wednesday, the 24th January, to elect an ASSISTANT SURGEON. Candidates, who must be Fellows of the Royal College of Surgeons of England, are invited to send in their applications addressed to the Secretary, with only three testimonials written especially for the purpose, on or before 12 o'clock on Tuesday, the 23rd January.

All the candidates will be required to attend before the Joint Committees on Wednesday, the 24th January, at 5 P.M. precisely.

By order of the Managing Committee,

3rd January, 1900. ADRIAN HOPE, Secretary.

Forms of application can be obtained from the Secretary.

The Hospital for Sick Children,

Great Ormond-street, London, W.C.—There will be a meeting of the Joint Committees on Wednesday, the 24th January, to elect Two ASSISTANT PHYSICIANS.

Candidates, who must be Fellows or Members of the Royal College of Physicians, London, are invited to send in their applications, addressed to the Secretary, with only three testimonials written especially for the purpose, on or before 12 o'clock on Tuesday, the 23rd January.

All the candidates will be required to attend before the Joint Committees on Wednesday, the 24th January, at 5 P.M. precisely.

By order of the Managing Committees,

3rd January, 1900. ADRIAN HOPE, Secretary.

Forms of application can be obtained from the Secretary.

St. Mark's Hospital for Fistula and

OTHER DISEASES OF THE RECTUM, City-road, E.C.—By the resignation of Dr. de Havilland Hall a vacancy as HONORARY PHYSICIAN occurs which will be filled by the Committee of Management in accordance with the laws of the hospital.

Applicants must be Fellows of the Royal College of Physicians, London.

Applications, accompanied by testimonials, must be sent to the Secretary on or before the 13th of January inst.

By order,

2nd January, 1900. EDGAR PENMAN, Secretary.

House Surgeon wanted for St.

MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C.

Applicants must be Fellows or Members of the Royal College of Surgeons, England.

Appointment for not less than six months.

Salary £50 per annum, with board, lodging, and washing.

Applications and testimonials (copies not exceeding eight) to be sent to the Secretary on or before the 13th January, inst.

By order,

2nd January, 1900. EDGAR PENMAN, Secretary.

The Ventnor Royal National Hos-

PITAL FOR CONSUMPTION AND DISEASES OF THE CHEST. On the separate Principle. For 153 patients.—ASSISTANT RESIDENT MEDICAL OFFICER required early in January. Board, residence, and salary of £80 per annum.—Apply at once to Dr. Parry, R.M.O., stating age, qualifications, and nature of previous engagements, with copies of testimonials.

Wolverhampton and Staffordshire

GENERAL HOSPITAL.—Applications are invited for the post of ASSISTANT HOUSE SURGEON. Candidates must be qualified. The appointment is for six months, and an honorarium at the rate of £50 per annum will be given at the expiration of the term of office. Board, lodging, and washing provided. Testimonials, sealed, and addressed to the Chairman of the Medical Committee, must be received not later than 15th January, 1900.

E. FORSTER, House Governor and Secretary.

Wolverhampton, 15th January, 1900.

General Hospital, Nottingham. —

Wanted, a HOUSE SURGEON. Salary £100, rising £10 a year to £120, with board, lodging, and washing. He will be elected for two years, and is eligible for re-election for one similar term.

Applications, stating age, with testimonials, to be sent in to the Secretary not later than Saturday, the 27th January, 1900.

By order,

E. M. KELLY, Secretary.

Torbay Hospital, Torquay. —

Wanted immediately, a HOUSE SURGEON qualified in Medicine and Surgery and registered under the Medical Act.

He will be required to give Lectures to the Nurses. He must not engage in private practice while connected with the Hospital.

Salary £100 per annum and £5 for the Nurses' Lectures. Board, lodging, washing, and attendance provided (wines, spirits, and beer excepted). Applications, with testimonials, must be sent to me at the Hospital on or before the 18th inst.

Jan. 3rd, 1900. H. J. PACKE, Secretary.

Chester General Infirmary. —

Wanted, a VISITING SURGEON for this Institution. Candidates must be duly registered. The appointment to be held for a period not exceeding two years. Salary £80 per annum, with residence and maintenance in the house. The duties of the Visiting Surgeon are to attend patients at their homes and to undertake any hospital duties that may be required under the rules and bye-laws of the Infirmary.

The appointment will be made on the 6th day of February, and the successful candidate will be required to enter upon his duties immediately.

Applicants must state age and qualifications and forward three recent testimonials addressed to the Chairman of the Board of Management, Secretary's Office, 29, Eastgate-row North, Chester, not later than the 27th inst. By order of the Board of Management.

Board Room, 2nd January, 1900. F. J. WARMSLEY, Secretary.

Derbyshire Royal Infirmary.—

There is a vacancy at this Infirmary for a RESIDENT HOUSE PHYSICIAN and a RESIDENT ASSISTANT HOUSE SURGEON.

Candidates must hold qualifications in Medicine and Surgery, and be registered under the Medical Acts.

The appointment of House Physician is tenable for twelve months with a possibility of extension by the Weekly Board for a further period of twelve months.

The salary is £100 per annum, with apartments and board.

The appointment of Assistant House Surgeon is for six months at a salary of £30 for the six months, with apartments, board, &c.

The Assistant House Surgeon will act as Anæsthetist to the hospital.

Further particulars can be obtained on application.

Applications, with copies of not more than five testimonials, to be sent to me by noon on Saturday, 20th January, 1900.

Duties to commence on 1st February, 1900.

By order,

WALTER G. CARNT, Secretary.

Royal Infirmary, Derby, Jan. 3rd, 1900.

Birkenhead Borough Hospital. —

A Special General Meeting of the Committee will be held under Law XV. at the Hospital on Friday, Jan. 26th, 1900, at 5.20 P.M., for the purpose of electing one HONORARY PHYSICIAN and two HONORARY SURGEONS to fill the vacancies caused by the retirement of Messrs. A. C. E. Harris, C. S. Stansfield, and A. H. Butcher, who have completed their full terms of office.

The attention of candidates is directed to the following laws of the institution relating to qualifications, &c., of honorary surgeons and physician.

Law X.—No honorary physician, surgeon, or dentist shall be re-elected oftener than to complete a period of 15 years' service from the date of his appointment.

Law XI.—That no physician or surgeon shall be eligible who does not possess a registered medical and surgical qualification obtained in the United Kingdom . . . . nor any medical officer holding a professional appointment in any other public charity. And if any honorary medical officer of this institution shall accept a professional appointment in any other public charity he shall be deemed to have thereby resigned his office in this institution.

Applications must be addressed to the secretary at the hospital, endorsed on the envelope "Election of Hon. Medical Officers," and will not be received after January 24th.

Canvassing is prohibited.

(Signed) HENRY BROOKE, Honorary Secretary.

THE SCHOLASTIC, CLERICAL, & MEDICAL ASSOCIATION, LTD.

MEDICAL DEPARTMENT.

This Association was established in 1880 as a Limited Liability Company under the direction of professional men, its object being the creation of a RESPONSIBLE and THOROUGHLY TRUSTWORTHY Agency. The Medical Department has met with so great success that it has been found necessary for one of the Managing Directors (Mr. G. B. Stocker) to devote his whole attention thereto; and he has the assistance of an experienced Medical Accountant and a large staff of clerks. Further, a Board composed entirely of gentlemen of high standing in the Medical Profession has been appointed, and to them matters of dispute and complaint are referred.

The Association undertakes the SALE of PRACTICES and PARTNERSHIPS; the Introduction of LOCUM TENENS and ASSISTANTS MEDICAL ACCOUNTANCY (by a duly qualified Medical Accountant); INVESTIGATION and VALUATION of Practices, &c.; POSTING BOOKS and sending out Bills, &c., &c.

A Pamphlet relating to the Medical Department, with the names of the "Directors" and "The Medical Advising Board," and terms, will be sent on application to—MR. G. B. STOCKER, MANAGING DIRECTOR, 8, LANCASTER PLACE, STRAND, W.C.

Telegraphic Address—"Triform, London." Telephone No. 1854 (Gerrard).

FOR SALE.

(1) HOME COUNTIES.—Unopposed PRACTICE.—Cash receipts for 1898, £732, including appointments worth about £100. Small house with stabling and garden. Rent £30. Good sport of all kinds. Station in the place. Premium £1000

(2) MIDLANDS.—IMMEDIATE.—Unopposed country PRACTICE.—Old-established.—Cash receipts for 1899 about £500, including appointments worth about £100. Comfortable old-fashioned house with stabling and good garden. Rent £40. Good hunting. Premium only £500.

(3) PARTNERSHIP (WEST OF LONDON).—Old-established rapidly increasing PRACTICE. Cash receipts for 1899, £1246. No carriage. A One third Share would be sold for £800. Purchaser should be a bachelor.

(4) HIGH CLASS PRESCRIBING PRACTICE in a favourite and increasing Health Resort. Average receipts over £450. Well situated house. Premium £735.

(5) YORKS, WEST RIDING.—PRACTICE in a Growing Town. Cash receipts for 12 months ending December, 1899, £680, including clubs worth about £60. One horse. Rent £35. Premium £650.

(6) PARTNERSHIP.—SMALL SOUTH COAST TOWN.—Old-established Practice. Cash receipts average £1063, including appointments worth about £150. A one-third Share would be sold for two years' purchase, with option of purchasing up to one-half in three years.

(7) SOUTH COAST.—RESIDENTIAL TOWN.—Old-established Good-class PRACTICE. Cash receipts for £1898 £557. Good and well-situated house; rent £60. Premium £750. The Practice could only be transferred to an experienced purchaser, preferably 35 to 50 years of age.

(8) PARTNERSHIP.—HOME COUNTIES.—Delightful residential country district. Cash receipts between £1200 and £1300 per annum, including appointments worth about £150. First-rate society. Small house. Rent £50. A one-third Share would be sold for 2½ years' purchase. Purchaser, unless a bachelor, should have some private means.

(9) PARTNERSHIP.—Residential Suburb of a large Town in the North of England. Good-class Non-dispensing PRACTICE. Cash receipts for 1899 about £722. Fees mostly 5s. A One-half Share would be sold at two years' purchase. There is scope for increase. Purchaser should have some private means.

(10) PARTNERSHIP.—EASTERN COUNTIES.—Half Share of a country town practice of about £1000 per annum, including club and union appointments. Price two years' purchase.

(11) PARTNERSHIP.—EAST COAST.—LARGE TOWN.—Cash receipts 1898, £1304, including appointments worth £450. A One-third Share would be sold for two years' purchase, with option of further purchase after seven years.

(12) Near Charing-cross. A well-established PRACTICE. Fees mostly cash. Receipts for 1898 £420, more than half ready money. Visiting fees 2s. 6d. to 7s. 6d. Rent £60. Good introduction. Premium £600.

(13) AN advantageous OPENING for a Roman Catholic medical man presents itself in the neighbourhood of London. Capital necessary £900. Small house and working expenses very small.

(14) NORTH OF ENGLAND.—Small manufacturing town. Old-established PRACTICE. Receipts about £600. Good house with stabling and small garden; rent £40. Premium for goodwill £600.

(15) PARTNERSHIP.—LONDON, W.—View to Succession. Middle- and Working-class PRACTICE; has averaged for the last three years between £600 and £700 per annum, including appointments worth between £200 and £300. No carriage. Large house. Rent £70. Premium £750 (£400 to be paid upon signing agreement and balance at end of partnership).

(16) SOUTH MIDLANDS.—A small PRACTICE in an attractive Country District. Receipts for 1899 at the rate of £320 per annum. House only suitable for bachelor. Rent £20. Considerable scope. Premium £480, to include house, furniture, drugs, and surgery fittings.

(17) LARGE NORTHERN CITY.—MIDDLE-CLASS PRACTICE. Cash receipts for last twelve months £2879. Visiting fees 2s. to 7s. 6d. Well-situated house; rent £55. Three months' introduction. Premium £600.

(18) BORDER OF WALES.—UNOPPOSED PRACTICE.—Cash receipts for 12 months ending May, 1899, £349, including appointments of about £80. Small semi-detached house with stabling and garden. Rent £25. Premium £349.

(19) PRIVATE ASYLUM.—Within 100 miles of London. Licensed for both sexes. Average net profits £1173. Capital required of at least £7700. Figures given above have been taken out by the Accountant to the Association.

FOR SALE (*continued*).

(20) PRIVATE ASYLUM.—Within an hour by rail of London. Licensed for the reception of a small number of ladies of the upper class. Net profits over £1100. Capital required of at least £4800.

(21) SOUTH-WEST.—Small Seaside Town.—Cash receipts average £650 in addition to income from resident patients at present about £1000. Exceptionally good house overlooking the sea, which must be purchased. Price £4000 (£2000 could remain on mortgage). Premium for goodwill £600.

(22) UNITED STATES.—Increasing PRACTICE in a residential seaside town in an Eastern State. Cash receipts for 1898 £1100. Visiting fees 6s. Rent about £50. Excellent society. An English or Scotchman would succeed well. The receipts for 1899 will be much more.

(23) LONDON, E.—Middle- and Working-class PRACTICE. Cash receipts for twelve months ending September 16th, 1899, were £360, including clubs worth about £40. Double-fronted house; rent £50. Premium £300.

(24) SOUTH COAST.—LARGE TOWN.—Cash receipts for 1898 £500 including a considerable amount from clubs. Surgery fees from 1s. No midwifery under £1 1s. Rent £45. Premium only £300.

(25) LONDON, S.E.—Increasing Cash PRACTICE of £658 (receipts for 1898). Rent £33, and other expenses small. Price only £450.

(26) SOUTH-WEST OF ENGLAND.—Seaport town. Receipts about £350. No Midwifery. Well-situated house; rent £40. Premium £400.

WANTED TO PURCHASE.

(27) WANTED, a good-class PRACTICE, in a country town of about 20,000 inhabitants, within two or three hours by rail of London. Income £900 per annum upwards. Purchaser is M.D., &c., and has ample capital.

(28) WANTED, a PRACTICE or PARTNERSHIP in a small town within easy reach of London or in a residential London Suburb. Purchaser is B.Sc. Lond., M.B. Lond. Ample capital and private means.

(29) WANTED, a good-class PRACTICE or PARTNERSHIP in a residential town in the South of England or Midlands. Income £500 to £1000. Purchaser is M.D. Edin., experienced, and can invest £1500.

(30) WANTED TO PURCHASE, a PRACTICE in the Home Counties or South of England, of not less than £1500 per annum. A large house essential. Purchaser is experienced, has considerable private means, and can invest up to £5000.

(31) WANTED, a good middle-class PRACTICE of £1000 per annum in a suburb of a large Town (Lancashire preferred). Purchaser is M.R.C.S., L.R.C.P., experienced, and can invest the necessary capital.

(32) WANTED, a good-class PRACTICE in a Residential Suburb of Manchester (Eccles preferred) of £1000 per annum upwards. Purchaser is M.D., M.R.C.S., &c., and can invest £5000.

QUALIFIED ASSISTANTS WANTED.

(40) W. Australia, £250, with house and commission. (41) London, W., £200 and house. (42) South Wales, £150, rooms. (43) London, N.E., £104, in-. (44) Middlesex, £110, in-. (45) Glam., £160 and rooms. (46) London, N., £120, in-. (47) Durham, £120, in-. (48) Kent, £160, out-. (49) Norfolk, £140, rooms. (50) Glam., £150, in-; view to partnership. (51) Essex, £100, in-. (52) London, N.W., £100, in-. (53) Hants, £100, in-. (54) London, W., £100, in-. (55) Mon., £120, in-. (56) Middlesex, £104, in-. (57) Lancs., £150, rooms. (58) Scotland, £140, out-. (59) Yorks, £120, in-. (60) Lancs., £100, in-. (61) Norfolk, £100, in-. (62) Dorset, £120, in-. (63) London, E., £100, in-. (64) Cheshire, £100, in-, cycle. (65) Cheshire, £120, in-. (66) Yorks, £150, and rooms. (67) Kent, £120, in-. (68) Notts, £120, in-. (69) Yorks., £100, in-. (70) Staffs, £140, and house. (71) Hants, £120, in-, or £170, out-; cycle. (72) Middlesex, £120, in-. (73) Lincs, £150, out-. (74) Glam., £140, rooms. (75) Devon, £150, out-; view to partnership. (76) London, N., £120, rooms. (77) Kent, £100, in-. (78) Devon, £100, in-. (79) Devon, £150, out-. (80) Somerset, £150, and house. (81) Herts, £100, in-; view to partnership. (82) Yorks, £100, in-, ride. (83) R.M.O. Institution, Suffolk, £100, in-. (84) North Wales, £140, in-, view to partnership. (85) Yorks., £100, in-. (86) Staffs., £120, in-.

N.B.—There are several hundred purchasers on the books of the Association so that the sale of any good Practice or Partnership within a reasonable time is virtually certain.

LOCUM TENENS SUPPLIED.

MEDICAL PARTNERSHIP AND CONVEYANCING AGENCY,

1, ADAM-STREET, ADELPHI, W.C.

The SALE of PRACTICES and PARTNERSHIPS NEGOTIATED.

Trustworthy LOCUM TENENS and ASSISTANTS can be had at a few hours' notice.

N.B.—No charge made to Purchasers.

Notice.—Mr. J. C. Needes, with an experience of over a quarter of a century, is in an exceptional position to give intending purchasers independent information concerning most PRACTICES and PARTNERSHIPS. Those investments in the following List marked with an asterisk are well known to him, having been purchased through his Office by the present Incumbents years ago, and in many other cases an introduction can be given to gentlemen who have taken charge of the Practices during the absence of the Incumbents.

A GENTLEMAN, who has practised for 25 years in a thriving Seaport Town, is now desirious of disposing of his Connexion, which is easily worked and worth about £950 per annum. Transferable appointments yield a considerable amount yearly. Visits 3s. 6d. to 7s. 6d. Horse not necessary. Large and convenient Residence (three sitting-rooms, six bed-rooms, &c.), with stabling and garden attached. Rent very moderate. Nine months' introduction given if required.

CHEAP INVESTMENT.—SOUTH LONDON.—A Cash PRACTICE yielding £730 during 1899 can be secured by a prompt purchaser for the moderate sum of £500; £400 down and balance by instalments. Expenses unusually light. Rent only £30, drug bill £50. About 160 cases of Midwifery yearly. Present incumbent has held the Practice a considerable time and will give a good introduction.

PARTNERSHIP.—NORTH MIDLANDS.—In consequence of the retirement of one of the Partners, the Half-share of an increasing Practice, yielding £1400 to £1500 per annum, is for negotiation. Situated in a Town about 20,000 inhabitants. Patients clergy, farmers, tradespeople, &c. Fees, mainly 3s. Visit and Medicine. About 150 cases of Midwifery yearly. The retiring Partner's excellent family residence (with large walled-in garden) is available for the purchaser. Premium for Share two years' purchase.

£1500 A YEAR.—LONDON.—A mixed Private and Cash PRACTICE yielding the above amount, and capable of increase, as a great deal of work is refused at present. Situated in a Northern Suburb. Convenient Private Residence, with stabling and large garden and shed. Rent £45 per annum, Premium, £1000 down, and balance by instalments.

WESTERN COUNTY.—An old-established and easily-worked PRACTICE in a pretty Country Town. First-class hunting, trout fishing, and shooting. The Practice is worth at present £350 per annum, but the income was formerly nearly three times this amount and there is every reason to believe it could be greatly increased. Union, Vaccination, &c., yield £100. Visits 2s. 6d. to 10s. 6d. exclusive of medicine. Very little Midwifery. Well-situated family residence with garden, stabling, &c., attached.

PARTNERSHIP, with Succession in two years, to an old-established Practice in a pleasant country town about 100 miles from London. The receipts amount to £900 per annum, including union and club appointments. Patients, clergy, professional men, farmers, tradespeople, &c. Railway station 2 miles distant. Vendor's excellent family residence with garden, tennis-court, stabling, and meadow attached can be had on the termination of the partnership. Golf, hunting, shooting, &c. Further particulars on application.

LONDON, S.W.—A lucrative PRACTICE yielding over £1100 per annum, nearly all of which is received in ready money fees. Almost half the income is derived from work at 2s. 6d. a visit and upwards, and there are several patients who pay £5 5s. for midwifery. The expenses of conducting the Practice are light, as a horse is not kept and the rent is only £50 per annum. Premium one year's purchase.

IN a PICTURESQUE and WELL-POPULATED DISTRICT, within 100 miles of London, an old-established PRACTICE, averaging about £500 per annum, including transferable union and club appointments. Held by vendor a number of years. Railway station in the place, and one other medical man. Visiting fees 3s. 6d. to 7s. 6d. One horse sufficient. Only about thirty cases of Midwifery yearly. The residence contains three sitting-rooms, four bedrooms, &c., with large garden, stabling, and paddock attached. Rent very moderate. Premium 1½ years' purchase. Hunting, fishing, shooting, and golf.

LONDON.—A PARTNERSHIP INTRODUCTION of six months (or possibly longer) will be given to a very old-established middle-class private PRACTICE averaging nearly £1400 per annum. About 40 cases of Midwifery yearly. The work is not hard, and neither a horse or qualified assistant is kept. A Dispenser at 30s. per week is sufficient assistance. House in main thoroughfare. Rent £55, premium £1500. The Practice has been held by present incumbent many years.

Apply to J. C. NEEDES, 1, Adam-street, Adelphi, W.C.

Locum Tenens and Temporary ASSISTANTS.—Practitioners requiring the above can immediately obtain thoroughly reliable qualified Gentlemen upon application to 1, Adam-street, Adelphi, W.C. Every Gentleman engaged by the Office in either of the above capacities is personally known to Mr. J. C. Needes. An office fee of half a guinea is payable by the Principal.

Telegraphic Address, "Acquirement, London."

(Established 1875.)

Mr. PERCIVAL TURNER

Son of a well-known Practitioner, and Author of Guide to Medical and Dental Professions),

Telegraphic Address—"EPSOMIAN, LONDON." **4, Adam-street, Adelphi, London, W.C. (close to THE LANCET Office).**

Hours for Consultation 10 to 5. Saturdays 10 to 1.

Death Vacancy. — Immediate.—LONDON.—Nearly £500 a year. A Middle-class and Cash PRACTICE, steadily increasing, in a populous S.E. suburb. Surgery fees mostly 1s. Private house, well situated for Middle-class Practice which is increasing. Rent £32. No horse or assistant. Introduction by widow and Locum Tenens. Easy terms can be arranged with a prompt purchaser. Personally visited by Mr. Turner.

£2000 a Year.—Partnership and Succession.—Wanted, a PARTNER, with view to Succession, in two years in a good old-established General Practice of over £2000 a year in a wealthy manufacturing town. Fees from 5s. upwards. Vendor retiring. One-third Share for immediate Disposal to suitable gentleman. Personally visited and investigated and strongly recommended by Mr. Turner.

London Suburbs.—Partner wanted to replace one retiring from good General Practice in a favourite good-class residential suburb. Fees 3s. 6d. to 10s. 6d. No appointments. Income about £1000 a year and increasing. Every investigation. A Half Share for Disposal for two years' purchase.—Apply to Mr. Percival Turner, 4, Adam-street, Adelphi, W.C., who has personally investigated Practice.

Immediate.—Partnership and Succession.—West of England.—A practitioner of about twenty-five years' standing in a large Town wishes to meet with a PARTNER with Succession to a Practice of over £700 a year. Fees 2s. 6d. to 10s. 6d. Appointments £150. Very little nightwork. No horse or Assistant necessary. Premium two years' purchase.—Well known to Mr. Turner

Partnership.—Easy terms.—Immediate, London. Income nearly £1000. Mixed Practice. Half Share for Sale. Payment by instalments.

London Suburbs.—£550 a Year.—For Disposal, an increasing PRACTICE in a good, increasing, semi-Suburban District. Fees from 2s. 6d. to 5s. Midwifery 21s. to 42s. Good corner house, in excellent position. Premium £750. Illness cause of sale. Personally known to Mr. Turner.

£500 a Year, London Suburbs.—IMMEDIATE.—A good increasing middle-class and Cash PRACTICE in good S.E. Suburb. Fees 1s. 6d. to 3s. 6d.; midwifery from 21s. Good double-fronted house and garden. Rent £48. Personally investigated. Premium about one year's purchase.

£700 a Year.—London, S.W.—Middle-class and partly Cash PRACTICE in populous suburb. Appointments £300. Good house. Rent £55. Fees from 1s.; visits, 2s. 6d. Premium, £550.

N.W. County.—£450 to £500 a year.—General PRACTICE in a small Town. Good detached house, garden, paddock, &c. Appointments £60. Premium £600.

Immediate.—Cash Practice, easy terms. Income £300 and increasing. Mostly cash. Clubs £80. London, E. Expenses small. Very easy terms to prompt buyer.

£500 a Year.—An absolutely unopposed Country PRACTICE, in an Eastern County. Same hands over 20 years. Ill health sole cause of sale. Half income is from transferable appointments. One horse. Small house and good garden. A very safe investment with scope for increase. Premium £700.

Partnership.—London, N.W.—£600 a year. Half-Share and Succession at early date if desired. No horse or assistant. Fees 2s. 6d. to 10s. 6d. Premium £450.

N.W. County.—A general Practice in a pleasant residential country district. Income about £400. Fees 3s. 6d. to 10s. 6d. Good house and garden; hunting and shooting. Premium £550.

To Vendors.—Wanted, Practices and PARTNERSHIPS in all parts of England. Mr. Percival Turner has at present several hundred clients waiting to purchase Practices, and Vendors having such for sale, ranging from £300 upwards, can be almost sure of finding immediate purchasers at full value by communicating in confidence with Mr. Percival Turner.

Locum Tenens wanted immediately for several Clients in Town and Country. Fees from £3 3s. a week. Personal application if possible. Recent references essential.

MEDICAL TRANSFER AGENCY AND ACCOUNTANCY OFFICES. (Established 1868.)

19, CRAVEN-STREET, STRAND, W.C.

Messrs. Peacock & Hadley negotiate the **TRANSFER** of **PRACTICES** and **PARTNERSHIPS**, also undertake **ARBITRATIONS, INVESTIGATION** and **VALUATION** of Practices and all other business connected with **MEDICAL AGENCY** and **ACCOUNTANCY.**

LOCUM TENENS and **ASSISTANTS** with satisfactory testimonials can be engaged at very short notice.

BOOKS kept, **ACCOUNTS** made out, and **DEBTS** promptly collected in Town and Country.

No charge made to Purchasers or for inquiries.

Telegraphic address: "Herbaria, London."

Lancashire.—Situated in a rising Seaside Resort, a well-established, first-class PRACTICE. Receipts, increasing annually, now exceed £700 a year. Consultation and Visiting fees range from 2s. 6d. to 10s.; Midwifery from 1 guinea upwards. No Assistant needed; one horse sufficient. Large, good, freehold house, most favourably situated facing the sea, fitted with modern requirements, coach-house, stabling, &c., to be sold with the Practice. Capital required from £1000 to £1500. Balance can remain on mortgage. Long partnership introduction given.

North of England.—An old-established PRACTICE in a large Manufacturing Town, held by Vendor several years. Patients consist of middle- and working-classes. Average receipts exceed £1600 a year; no clubs. Large modern residence, well situated, and fitted up with every convenience; good stabling and coach-house. Premium £2400.

South Yorks.—A country Practice of about £350 a year, with appointments worth £100, at present worked as a Branch Practice, owner living ten miles distant. Expenses very light, one horse or cycle sufficient. Premium £300, or a share of the chief practice and branch combined might be sold.

United States.—A good middle-class PRACTICE situated in a large and prosperous town containing a great number of English residents. The receipts average £500 a year. Fees are good. House contains twelve rooms with garden back and front. Rent, including taxes, about £80. Price for good-will, valuable furniture, and instruments, £500. An efficient introduction given. Registration easily obtained.

London, E. — An old-established PRACTICE, situated in a main thoroughfare, held by present incumbent eleven years. The receipts, chiefly derived from ready-money fees, average over £700 a year. The Practice is easily and inexpensively worked, no horse or assistant being kept. Net rent (stabling let off) £50. Convenient residence for bachelor or small family. Good references given by vendor and the books open to investigation. Premium about one year's purchase with efficient introduction.

London, N.W.—Partnership.—An old-established, non-residential Cash and Private PRACTICE in good middle-class district. Principal who lives at a distance attends four or five hours a day only; receipts which are now £600 a year could be considerably increased with longer attendance and if Junior Partner lived in the neighbourhood. Expenses are light. Premium for Half Share £450. Suit a young and active gentleman.

London, N.E.—A thoroughly established CASH PRACTICE, doing £350 a year, capable of increase. Patients consist of middle- and working-classes. Fees at the surgery are chiefly 1s., Visits 1s. 6d. to 2s. 6d., Midwifery 15s. and 21s. Medium-sized house, rent £38. Premium £300. Books for last four years can be seen.

Nursing Home, held by a Doctor's Widow, situated in an outlying residential suburb of London. Though not long established the turnover is already £600 a year, and there is every probability of this being considerably increased before long. The house is admirably adapted for the purpose, well situated and completely furnished, with every requisite and fitted in modern style. Price for goodwill, furniture, fittings, plate, linen, &c., £600.

To Intending Purchasers.—Besides the above Practices Messrs. Peacock and Hadley have several others upon their books, therefore gentlemen are invited to forward particulars of their requirements.

WANTED TO PURCHASE.

A well-qualified married Gentleman wishes to Purchase a well-established middle-class PRACTICE of £600 a year or more, in a good residential neighbourhood of London or outlying suburb. From 1¼ to 2½ years' purchase will be given for suitable Practice or Partnership. Particulars received in confidence.

Apply PEACOCK & HADLEY, 19, Craven-street, Strand, W.C.

Messrs. H. Wilson and Son,
26, CHARLES STREET, ST. JAMES'S SQUARE, S.W.
Established Half a Century.
MEDICAL REFEREES, VALUERS AND ARBITRATORS.
LOCUM TENENS AND QUALIFIED ASSISTANTS PROVIDED.

1. LANCASHIRE.—In a large Town, a well-established PRACTICE about £1500 per annum, including £200 from appointments. Visiting fees 2s. 6d. and 3s. 6d.; Midwifery from 15s.; about 200 cases a year. A convenient house, with stabling. A qualified Assistant. Premium £1700.
2. LONDON E.—An old-established PRACTICE, £1000 per annum, including £150 from appointments. A convenient house, rent £48. An assistant kept. No carriage. Premium, £1200.
3. PARTNERSHIP.—The half-share of a private Practice in the E.C. district. Income between £1100 and £1200 per annum, including £150 from contracts. About 40 midwifery cases a year from 21s. Has been established over a century.
4. WITHIN 10 miles in a populous locality a Mixed-class Private and Ready-money PRACTICE about £400, including £60 from clubs. Small but convenient house; rent and taxes £35. Fees 2s. to 5s. Midwifery from 21s.; twenty cases a year. Premium £350.
5. BERKS.—£300.—In a small Town. One other Practitioner. A comfortable cottage residence. Good opening for a Young Practitioner. Vendor does not keep a horse.
6. WITHIN FIFTY MILES.—EASTERN COUNTIES.—A General PRACTICE from £600 to £700 per annum, including £60 to £70 from appointments. A small but comfortable house, garden, and stabling; rent £25.
7. GLOUCESTERSHIRE.—Unopposed PRACTICE, at present only £200 per annum, but capable of being greatly increased if worked by a young and active practitioner; the present incumbent having means has taken things easily. Capital house, good garden and stabling. Rent £50. Good hunting and shooting; on a line of rail.

PRACTICES REQUIRED.

1. IN THE COUNTY OF DURHAM, by a Gentleman, M.D., F.R.C.S., married. Income from £800 to £1200 has been at command.
2. LONDON SUBURBS, by a Gentleman, M.B. & C.M. Edin., age thirty-four, married. Income from £700 to £1400; has private means, also capital ready.
3. COUNTRY PRACTICE.—£1000 to £1200, by a middle-aged Practitioner, who has just relinquished a large Practice in a northern town.
4. WITHIN TWENTY MILES of a large Midland Town, a PRACTICE, £500 to £800 per annum, by a Gentleman, M.R.C.S., L.R.C.P. London. Age thirty-six. Wishes to carry out an immediate arrangement.

MEDICAL VACANCIES.

Large Private and Colliery PRACTICE, £120, in-door, private sitting-room, two other assistants kept, also Dispensers. London, S.W., £90, in-door. Warwick square, £80 to £90, in-door.

LOCUM TENENS.

Several gentlemen required directly from 3 to 5 guineas per week.
Personal application.

CLINTON'S MEDICAL AGENCY,
10, ADAM STREET, STRAND, LONDON, W.C.
Telegraphic Address—"*ELECTICISM, LONDON.*"

Mr. ARTHUR CLINTON, who has a large and influential connexion in the Profession, and can give the highest references, negotiates the Sale of PRACTICES and PARTNERSHIPS.
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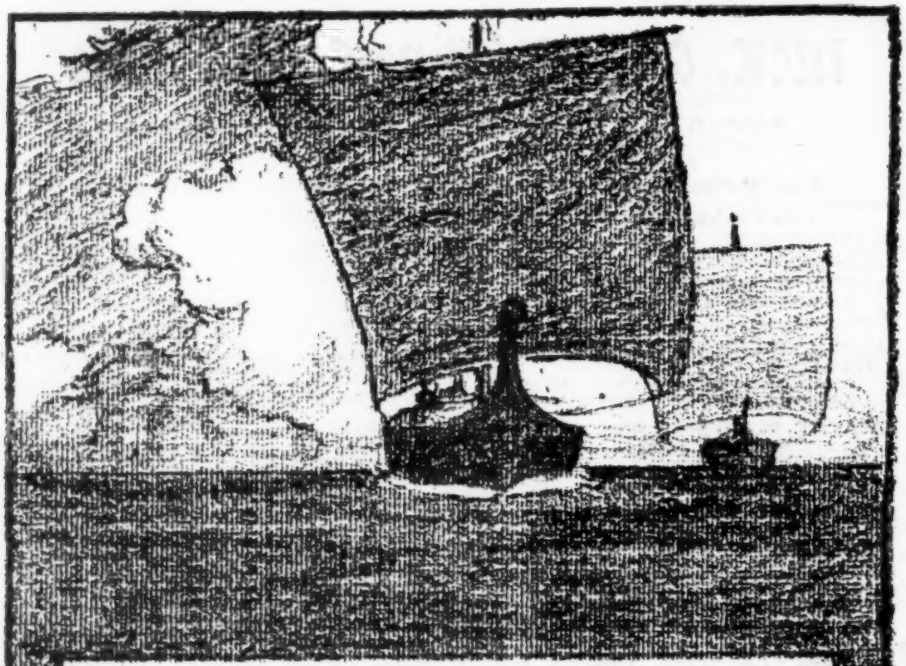

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